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FM 8-50

DEPARTMENT OF THE ARMY FIELD MANUAL

BANDAGING AND SPLINTING

**HEADQUARTERS, DEPARTMENT OF THE ARMY,
JUNE 1957**

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No. 8-50

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BANDAGING AND SPLINTING

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*This manual supersedes FM 8-50, 15 January 1944, including C1, 25 September 1944; C2, 6 June 1945; C3, 11 February 1948; and C4, 7 May 1953.

CHAPTER 1

PURPOSE AND SCOPE

1. Purpose

This manual is published to serve as a guide to the medical service officer and noncommissioned officer concerned with instructing Army Medical Service enlisted personnel. The organization of the manual will aid the instructor in his presentation of subject matter; the illustrations will aid in explaining approved procedures as these procedures are being demonstrated. As a reference, the manual is a source of graphic information.

2. Scope

This manual is intended for use whenever instruction in the various tasks pertaining to the care of casualties and patients touches upon the application of bandages, dressings, and splints. It cannot be too strongly emphasized that the techniques described in the manual require constant practice if they are to be carried out quickly and correctly. The scope of the manual is limited in that it does not provide complete information on the care and treatment of wounds and fractures.

CHAPTER 2

BANDAGING

Section I. INTRODUCTION

3. General

The proper bandage properly applied can aid materially in the recovery of a patient. A carelessly or improperly applied bandage can cause discomfort to the patient; in many instances it may expose the wound to danger of infection; it may even imperil the life of the patient. It is essential, therefore, that all personnel of the Army Medical Service become familiar with the various bandages and be able to apply them properly. The following discussion of bandaging will aid the student and the teacher, but the technique of bandaging can be mastered only by constant practice.

4. Uses of Bandages

A bandage is used to hold a dressing in place over a wound, to create pressure over a bleeding wound for control of hemorrhage, to secure a splint to an injured part of the body, and to provide support to an injured part.

5. General Principles of Bandaging

A bandage should never be applied directly over a wound; it should be used only to hold in place the dressing which covers a wound. A bandage should be applied firmly and fastened securely. It should not be applied so tightly that it stops circulation or so loosely that it allows the dressing to slip. If bandages work themselves loose or become unfastened, wounds may bleed, they may become infected, and broken bones may become further displaced. It is essential, therefore, that bandages be properly applied and well secured.

6. Basic Materials

Bandages are made from different types of material such as gauze, muslin, flannel, crinoline, rubber, and elastic webbing. The materials most commonly used are gauze and muslin.

a. Gauze bandages are widely used because they are light, soft, thin, and porous, and may be easily adjusted and applied.

b. Before being made into bandages, muslin should be soaked in water and dried to cause shrinkage and then ironed to remove

wrinkles. Muslin is strong, inexpensive, and readily obtainable; and can be easily torn into strips of the desired width. Muslin bandages are excellent for bandage practice, since they can be used repeatedly without fraying and can be easily rerolled.

c. Flannel, being soft and elastic, may be applied smoothly and evenly, and is useful for conditions requiring bandages which absorb moisture and maintain body heat.

d. Crinoline, rather than ordinary gauze, is used in making plaster of paris bandages, since the mesh of crinoline retains the plaster more satisfactorily than that of gauze.

e. Rubber and elastic webbing are used to afford firm support to a part. Webbing is preferable to pure rubber, since it permits the evaporation of moisture.

7. Types of Bandages

The three general types of bandages are triangular bandages, roller bandages, and tailed bandages.

Section II. TRIANGULAR AND CRAVAT BANDAGES

8. General (fig. 1)

The triangular bandage is used for the temporary or permanent bandaging of wounds, the immobilization of fractures and dislocations, and as a sling for the support of an injured part of the body. It is valuable in emergency bandaging since it is quickly and easily applied, stays on well, and can be improvised from a piece of shirt, an old sheet, a large handkerchief, or any other pliable material of suitable size. Unbleached muslin is generally used in making triangular bandages, although linen, wool, or silk may be used satisfactorily. In making the triangular bandage a square of material about 3 by 3 feet, or slightly more, is folded diagonally to make one bandage, or may be cut along the fold to make two. The long side of the triangle is called the "base", the point opposite the base is called the "apex", and the points at each end of the base are called the "ends" or "extremities". This bandage may be used either as a triangle or as a cravat, the latter being made from the triangle by bringing the apex to the base and folding it upon itself a sufficient number of times to obtain the desired width. The names of the triangular and cravat bandages indicate the part of the body to which the bandage is applied. In many of the illustrations of bandages in this manual, the dressings have been omitted for the sake of clarity.

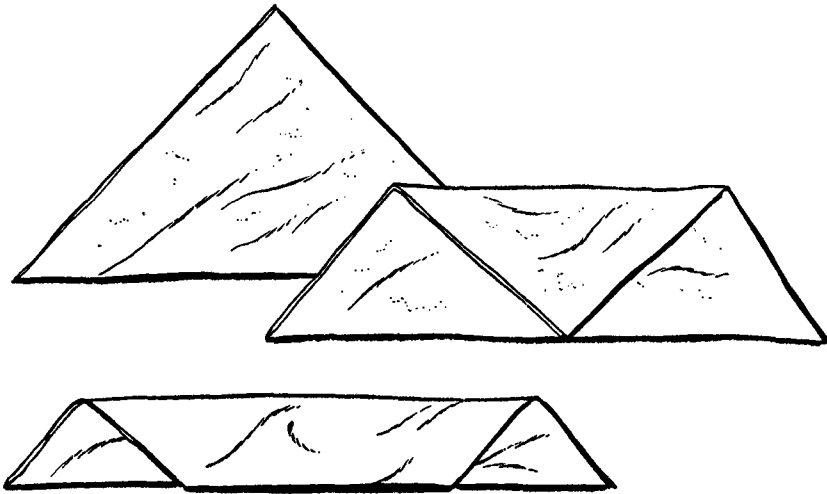


Figure 1. Triangular and cravat bandages.

9. Triangle of Forehead or Scalp (fig. 2)

The triangle of forehead or scalp (fronto-occipital) is used to hold dressings on the forehead or scalp.

a. Place middle of base of triangle so that edge is just above the eyebrows and bring apex backward, allowing it to drop over back of head (occiput). Bring ends of triangle backward above ears.

b. Cross ends over apex at occiput, carry ends around forehead, and tie them in a square knot (fig. 3).

c. Turn up apex of bandage toward top of head. Pin with safety pin or tuck in behind crossed part of bandage.

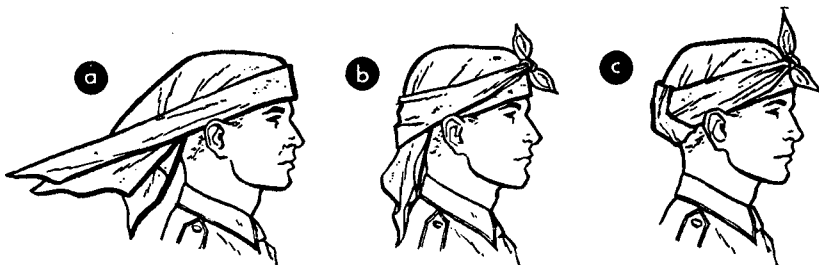


Figure 2. Triangle of forehead or scalp.

10. Triangular Arm Sling (fig. 4)

The triangular arm sling (brachio-cervical triangle) is used for the support of fractures or injuries of hand, wrist, and forearm. Two versions of this sling are discussed below.

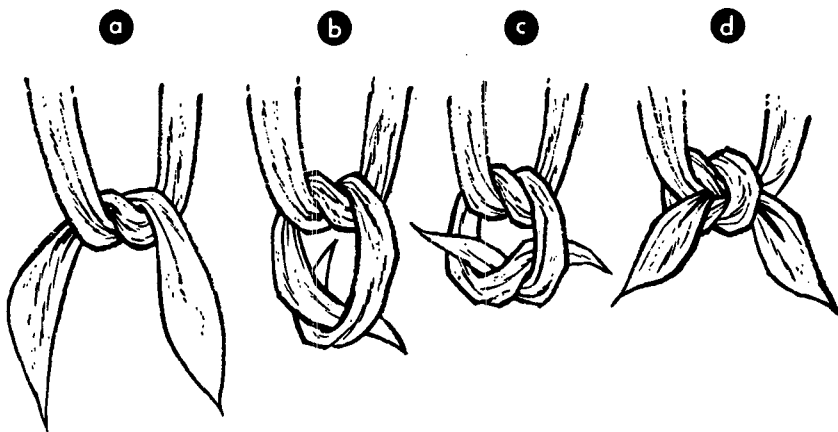


Figure 3. Tying the square knot.

a. In this method of applying the sling, the forearm is supported from both shoulders by the sling.

- (1) Bend arm at elbow so that little finger is about a handbreadth above level of elbow.
- (2) Place one end of triangle over shoulder on injured side and let bandage hang down over chest with base toward hand and apex toward elbow.
- (3) Slip bandage between body and arm.
- (4) Carry lower end up over shoulder on uninjured side.
- (5) Tie the two ends, by square knot, at the neck. Knot should be on either side of neck, not in the middle where it could cause discomfort when patient is lying on back.
- (6) Draw apex of bandage toward elbow until snug, bring it around to front, and fasten with safety pin or adhesive tape.

b. If it is desirable to support the forearm without pressure on the collarbone or shoulder of the injured side, the following steps are taken.

- (1) Bend arm at elbow so that the little finger is about a handbreath above level of elbow.
- (2) Drape upper end of triangle over uninjured shoulder.
- (3) Slip bandage between body and arm.
- (4) Carry lower end up over flexed forearm (ends of fingers should extend slightly beyond base of triangle).
- (5) Slide lower end of bandage under injured shoulder between arm and body and secure the two ends with a square knot.
- (6) Draw apex toward elbow until snug, and secure with safety pin or adhesive tape.

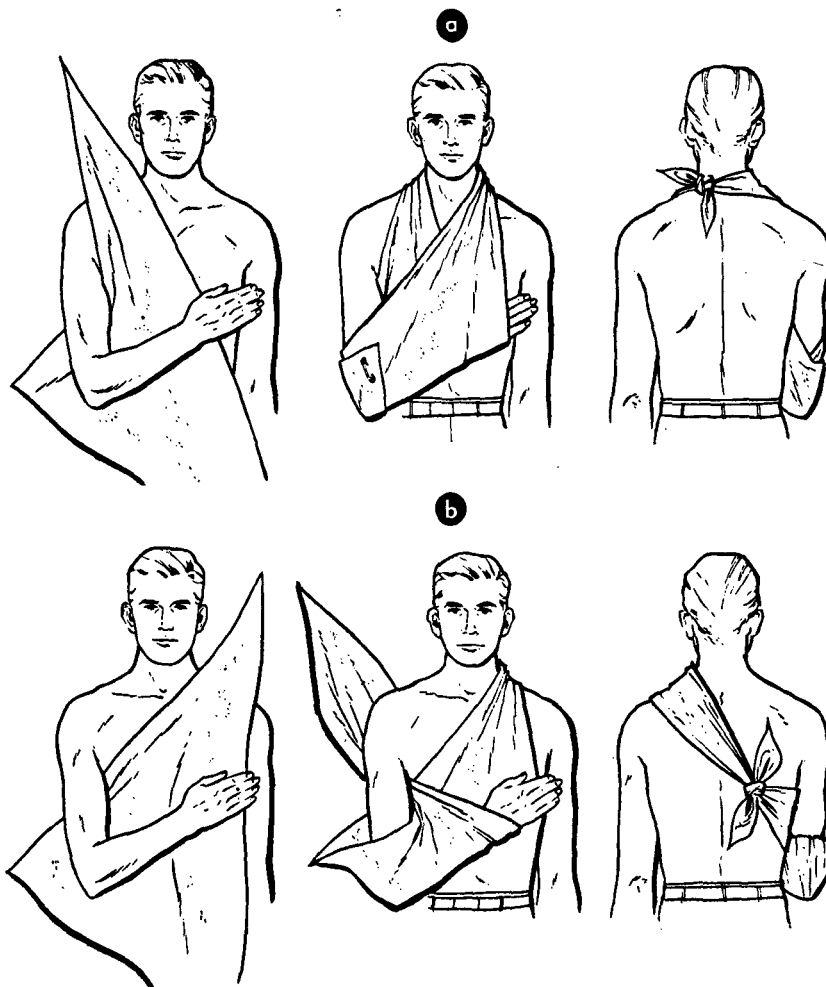


Figure 4. Triangular arm sling.

11. Triangle of Chest or Back (fig. 5)

This bandage is used to hold dressings on burns or wounds of chest or back.

a. Drop apex of triangle over shoulder on injured side. Bring bandage down over chest (or back) to cover dressing, so that middle of base of bandage is directly below injury. Turn up a cuff at base.

b. Carry ends around and tie in a square knot, leaving one end longer than the other.

c. Bring apex down and tie to long end of first knot.

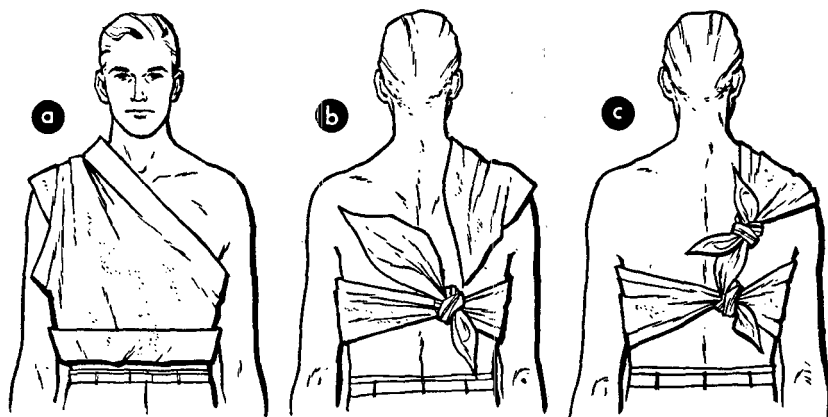


Figure 5. Triangle of chest or back.

12. Triangle of Shoulder (fig. 6)

The triangle of the shoulder is used to hold dressings on wounds of the shoulder. Two bandages are required, one a triangle and the other a cravat, roller bandage, or belt.

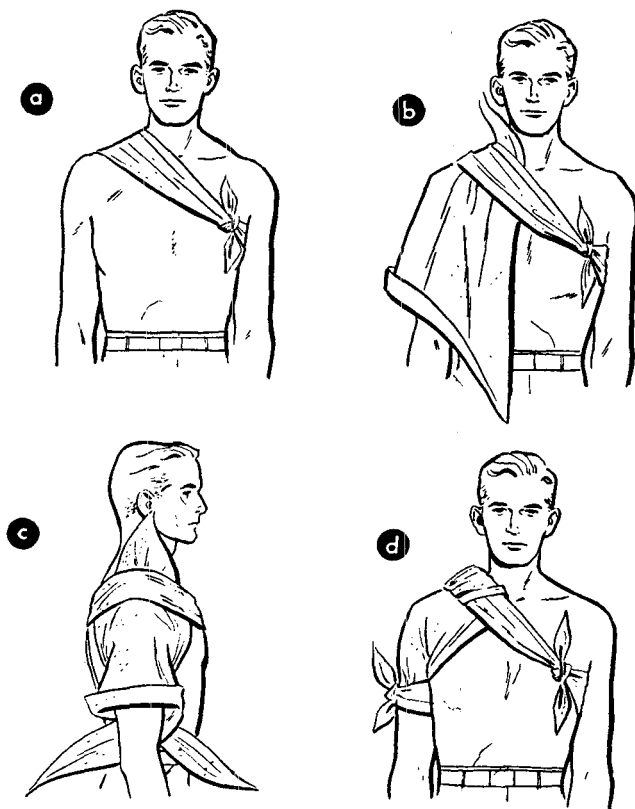


Figure 6. Triangle of shoulder.

- a. Place center of cravat, roller bandage, or belt, at base of neck on injured side, and fasten just forward of opposite armpit.
- b. Slide apex of open triangle under cravat at base of neck and place over dressing on injured shoulder and upper arm. Turn up cuff at base.
- c. Bring ends around arm and tie.
- d. Secure apex to cravat at neck by tucking in, or with safety pin.

13. Triangle of Hip (fig. 7)

The triangle of the hip is used to hold dressings on the buttock or hip. It requires two bandages, one a triangle and the other a cravat, roller bandage, or belt.

- a. Fasten cravat, roller bandage, or belt around waist.
- b. Place base of triangle below buttock (gluteo-femoral fold), and slide apex under cravat at waist. Fold base upward to form cuff and carry ends of base around thigh.
- c. Tie ends of base with square knot. Fasten apex to waist cravat with safety pin or by tucking under.

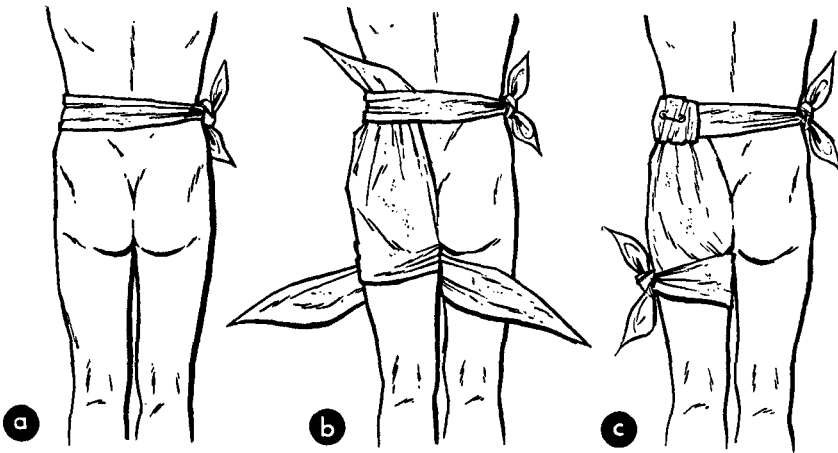


Figure 7. Triangle of hip.

14. Triangle of Foot (fig. 8)

The triangle of the foot is used to hold dressings of considerable size on the foot.

- a. Center foot upon bandage at right angles to base, with heel well forward of base.
- b. Carry apex of triangle over toes to ankle, and tuck excess fullness of bandage into small pleats on each side of foot.

- c. Cross each half of bandage toward opposite side of ankle.
- d. Bring ends of triangle around ankle.
- e. Tie ends in square knot.

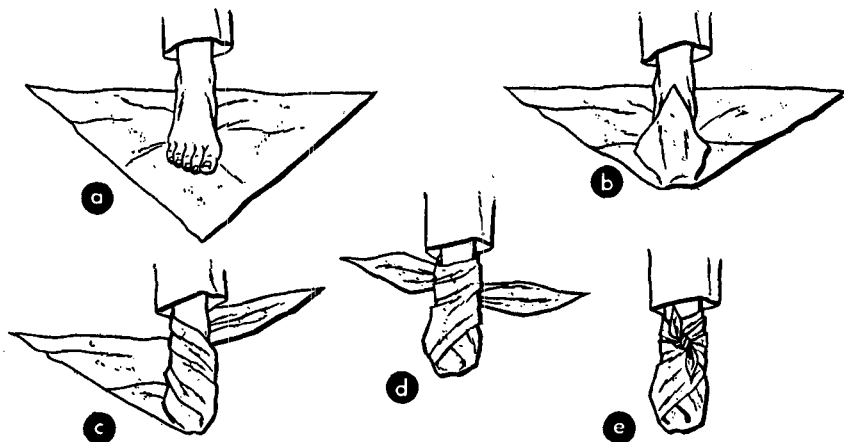


Figure 8. Triangle of foot.

15. Triangle of Hand (fig. 9)

The triangle of the hand is used to hold dressings of considerable size on the hand.

- a. Place middle of base of triangle well up on palmar surface of wrist.
- b. Carry apex around ends of fingers. Cover back (dorsum) of hand to wrist, and tuck excess fullness of bandage into small pleats on each side of hand.

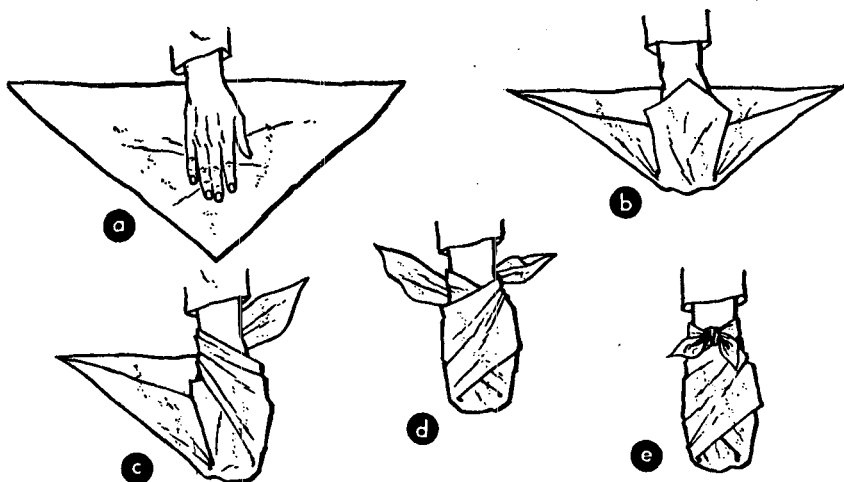


Figure 9. Triangle of hand.

- c. Cross each half of bandage toward opposite side of wrist.
- d. Bring ends of triangle around wrist.
- e. Tie ends in square knot.

16. Cravat of Head or Ear

(fig. 10)

The purpose of this bandage is to apply pressure to control hemorrhage from wounds of scalp, or to hold dressings on wounds of ear or lower scalp.

- a. Place middle of cravat over dressing.
- b. Pass each end completely around head.
- c. Tie in square knot.

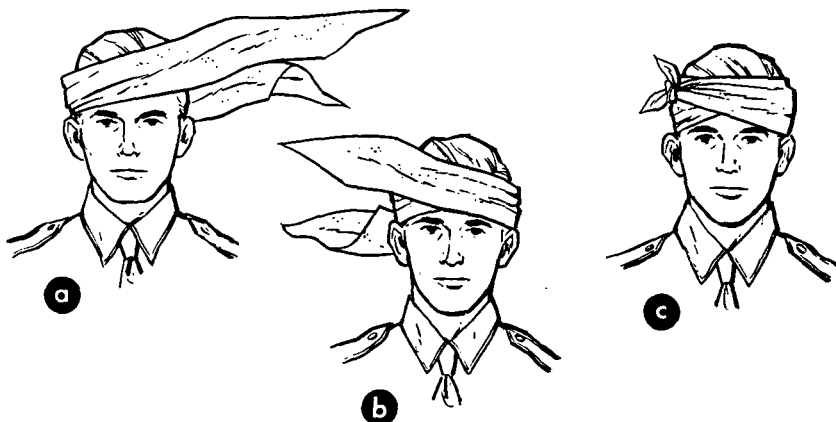


Figure 10. Cravat of head or ear.

17. Cravat of Jaw

(fig. 11)

The cravat of jaw (mento-vertico-occipital cravat) is used to hold dressings on the chin, cheeks, and scalp and as a temporary support to immobilize a fractured or dislocated jaw.

- a. After making a triangular bandage into a cravat of proper width, place it under the chin and carry ends upward with one end longer than the other.
- b. Bring longer end over top of head. Cross both ends on side of head. (Ends should now be of equal length.)
- c. Pass ends around head in opposite directions and tie with square knot on other side of head on primary turn of cravat.

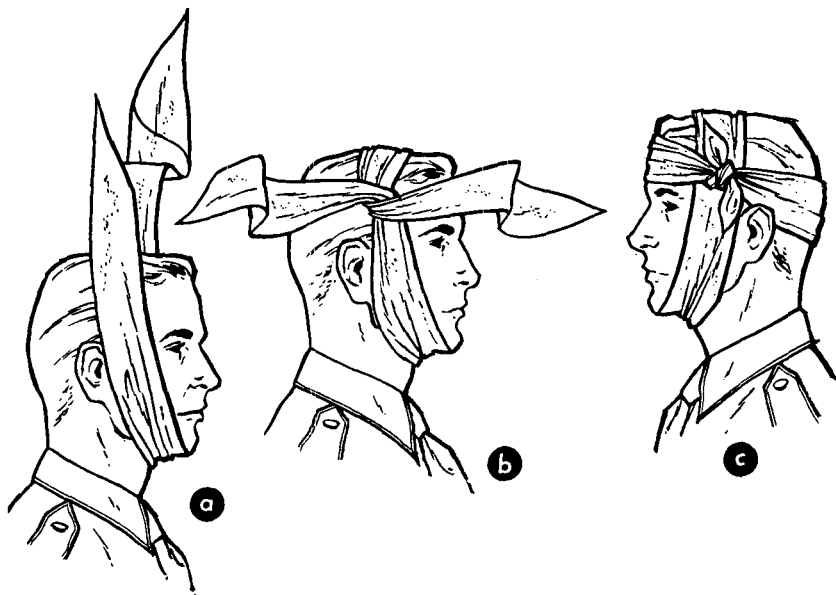


Figure 11. Cravat of jaw.

18. Cravat Bandage of Eye

(fig. 12)

The cravat bandage of the eye is used to hold a dressing over the eye. Two cravats are required.

a. Lay center of first cravat over top of head with the front end falling over uninjured eye.

b. Bring second cravat around head, over eyes, and over loose ends of first cravat. Tie in front.

c. Bring ends of first cravat back over top of head, tying there and pulling second cravat up and away from uninjured eye.

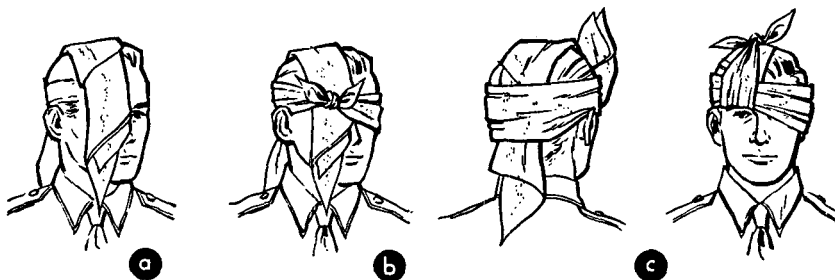


Figure 12. Cravat bandage of eye.

19. Shoulder-Armpit Cravat

(fig. 13)

The shoulder-armpit cravat (bis-axillary) is used to hold dressings in the armpit (axilla) or on the shoulder.

- a. Place cravat over dressing in armpit so the front end is longer than the back. Carry the ends upward.
- b. Bring ends across each other over top of shoulder.
- c. Cross ends over back and chest respectively to opposite armpit. Tie ends just in front of uninjured armpit.

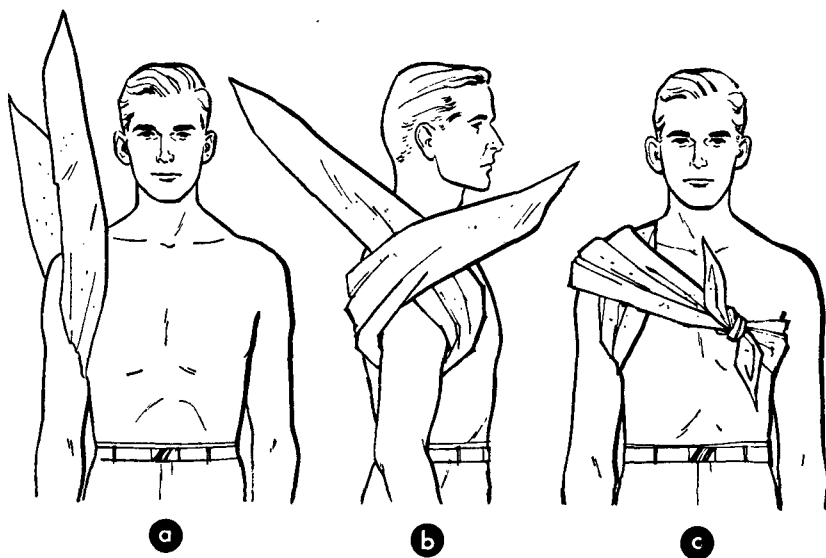


Figure 13. Shoulder-armpit cravat.

20. Cravat of Elbow (fig. 14)

The cravat of the elbow is used to hold dressings around the elbow.

- a. Bend arm at elbow and place center of cravat at point of elbow (olecranon).

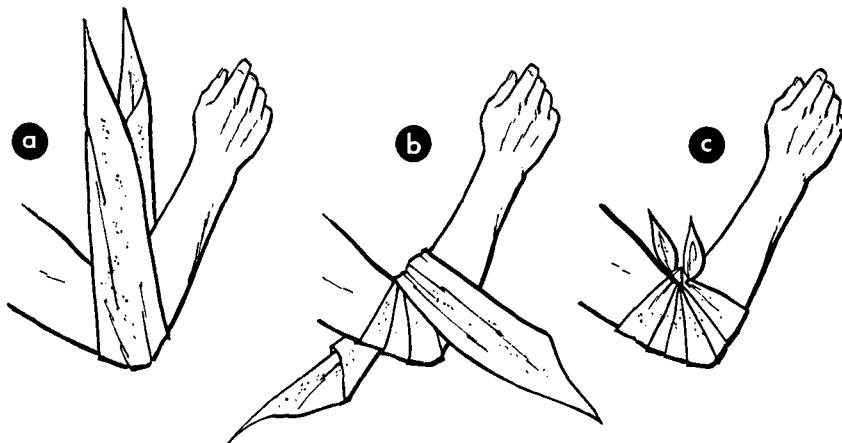


Figure 14. Cravat of elbow.

- b. Bring ends up and across each other in overlapping spiral turns. Continue one end up arm and the other end down forearm.
- c. Bring ends to front of elbow (antecubital fossa), and tie.

21. Cravat of Knee (fig. 15)

The cravat of the knee is used to hold dressings around the knee.

- a. Place center of cravat over kneecap and let ends hang down each side of knee.
- b. Cross ends underneath and continue several overlapping descending turns down calf, and several overlapping ascending turns up thigh.
- c. Bring ends together and tie under knee.

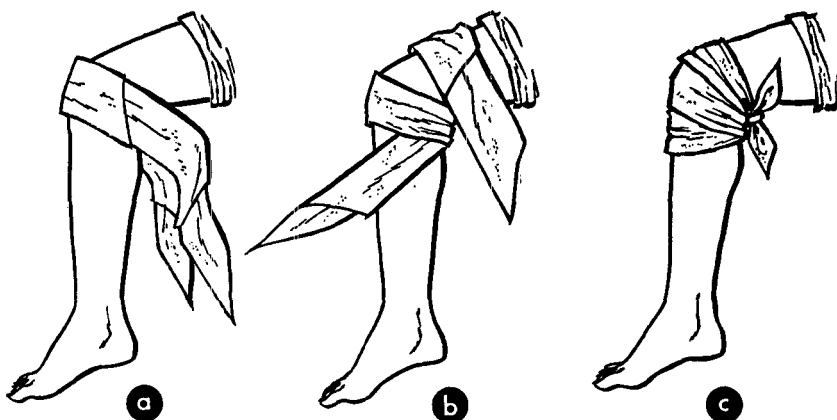


Figure 15. Cravat of knee.

22. Cravat of Leg (fig. 16)

The cravat of the leg is used to hold dressings on the leg.

- a. Place center of cravat over dressing.
- b. Begin ascending turns with upper end, and descending turns with lower end, with each turn covering two-thirds of preceding turn until dressing is covered.
- c. Terminate by tying both ends in square knot.

23. Cravat of Palm of Hand (fig. 17)

This bandage is used to hold dressing on the palm of the hand.

- a. Lay center of cravat over center of palm of hand with ends hanging down each side.

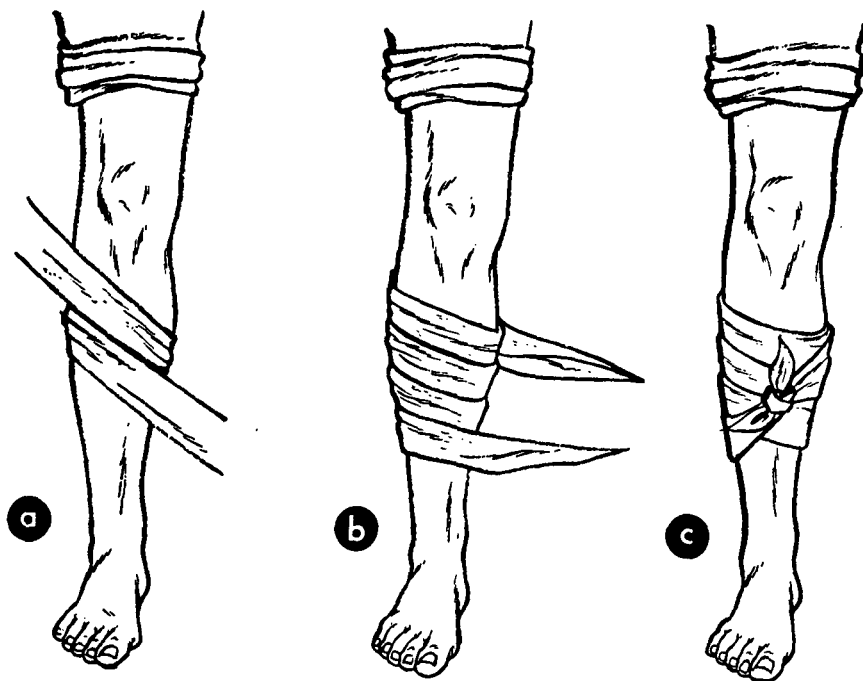


Figure 16. Cravat of leg.

- b. Bring the thumb end across back of hand, over palm, and through hollow between thumb and palm.
- c. Bring the other end across back of hand, toward base of thumb, and obliquely across palm to base of little finger.
- d. Cross both ends at back of hand.
- e. Continue procedure, ends crossing first at back of hand and then over palm.
- f. Tie in square knot at wrist.

Section III. ROLLER BANDAGES

24. General (fig. 18)

The roller bandage is used to hold dressings in place, to support an injured part, to create pressure for control of hemorrhage, and to secure a splint to an injured part in order to immobilize it. Roller bandages are made from gauze, flannel, muslin, rubber, or elastic webbing, the width and length depending upon the part to be bandaged. The sizes most frequently used are 2 inches wide and 6 yards long for hand, finger, toe, and head bandages; 3 inches wide and 10 yards long for extremities; and 4 inches wide and 10

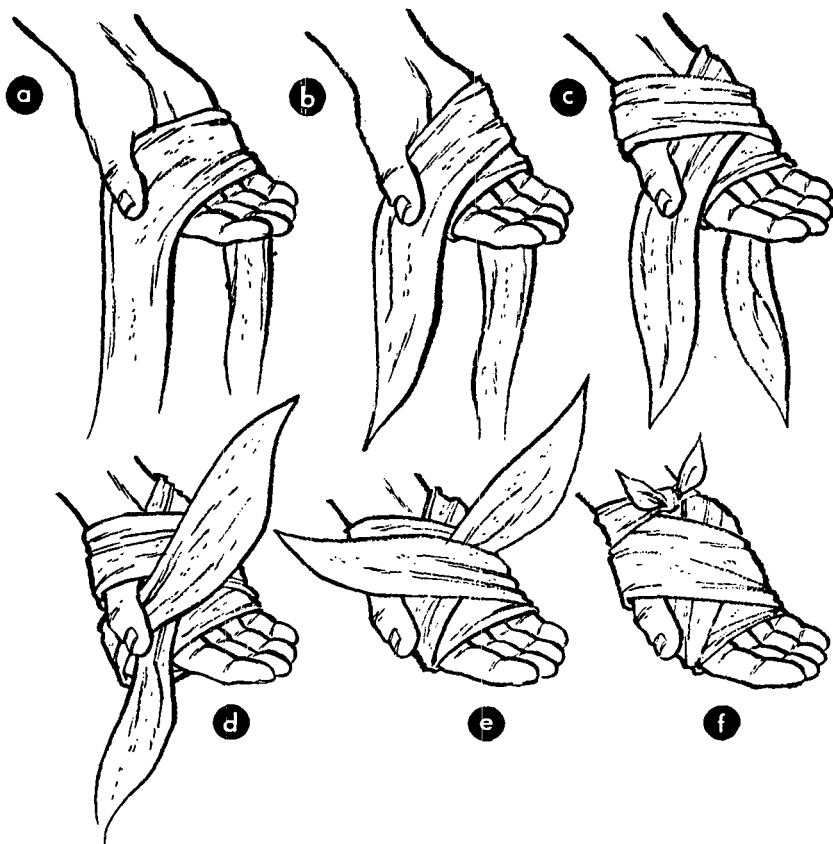


Figure 17. Cravat of palm of hand.

yards long for thigh, groin, and trunk. For convenience and ease of application, the strip of material is rolled into the form of a cylinder. Each bandage of this type should consist of only one piece, free from wrinkles, seams, selvage, and any imperfections that may cause discomfort to the patient.



Figure 18. Roller bandage.

25. Applying the Roller Bandage

When a roller bandage is to be applied to a part, the roll should be held in the right hand so that the loose end is on the bottom.

The outside surface of the loose end is next applied to the part and held there with the left hand. The roll is then passed around the part by the right hand, which controls the tension and direction of the bandage. Two or three of the initial turns of a roller bandage should overlie each other to secure the bandage. In applying the bandage, it is often necessary to transfer the roll from one hand to the other.

26. Control of Pressure in Applying Roller Bandages

Roller bandages should be applied evenly, firmly, and not too tightly. Excessive or uneven pressure will interfere with the circulation and harm the patient.

a. In bandaging an arm or leg, the entire extremity (except the fingers or toes) should be covered to maintain uniform pressure. The fingers or toes should be left exposed so the circulation in these parts can be checked.

b. An extremity should be bandaged in its final position, since bending will change the pressure of parts of the bandage.

c. It is safer to use a large number of turns rather than a few too firmly applied turns to secure splints or dressings. This is particularly important in applying a wet bandage, or one that may become wet while securing a wet dressing. A wet bandage will be unduly tightened when it dries if allowance has not been made for shrinkage.

d. Bandage turns should overlap to completely cover the skin, since any uncovered skin may be pinched between the turns. To prevent chafing and irritation when two parts are bandaged together, skin surfaces should be separated by absorbent material.

27. Anchoring the Bandage (fig. 19)

The usual anchors consist of several circular turns overlying each other. Initial turns should be applied securely and, when possible, around the part of the limb with the smallest circumference. The wrist and the part immediately above the ankle are preferred for anchoring appropriate bandages. (Wrist anchors and ankle anchors are applied similarly.) To apply a secure wrist anchor, the following steps are taken.

a. Lay bandage end obliquely across top of wrist and then bring under wrist and back to starting point.

b. Fold uncovered triangle of end back over second turn.

c. Cover by third turn, completing the anchor.

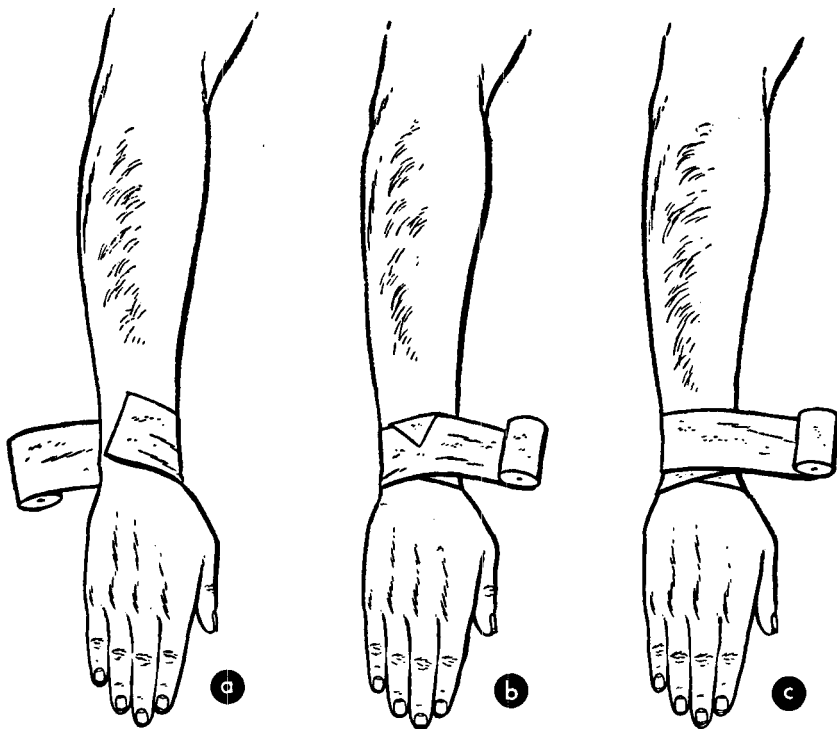


Figure 19. Anchoring the bandage.

28. Fastening the Bandage (fig. 20)

Bandages are terminated by applying several overlying circular turns and fastening the ends securely. The ends may be tied, pinned, or fastened with adhesive tape. Two methods of tying are illustrated.

a. The end of the bandage is folded back upon itself to form two ends which can be tied.

b. The end of the bandage is split lengthwise for a suitable distance and a simple knot tied at the end of the tear.

c. The split ends are then brought around in opposite directions and tied. The square knot illustrated in figure 3 is the best type of knot for tying bandages. It will hold firmly and can be easily unfastened.

29. Removing the Bandage

Bandage scissors are preferable when the bandage is to be removed by cutting. Interference with the underlying dressing and wound should be carefully avoided. Folds should be gathered up when the bandage is merely unwound.

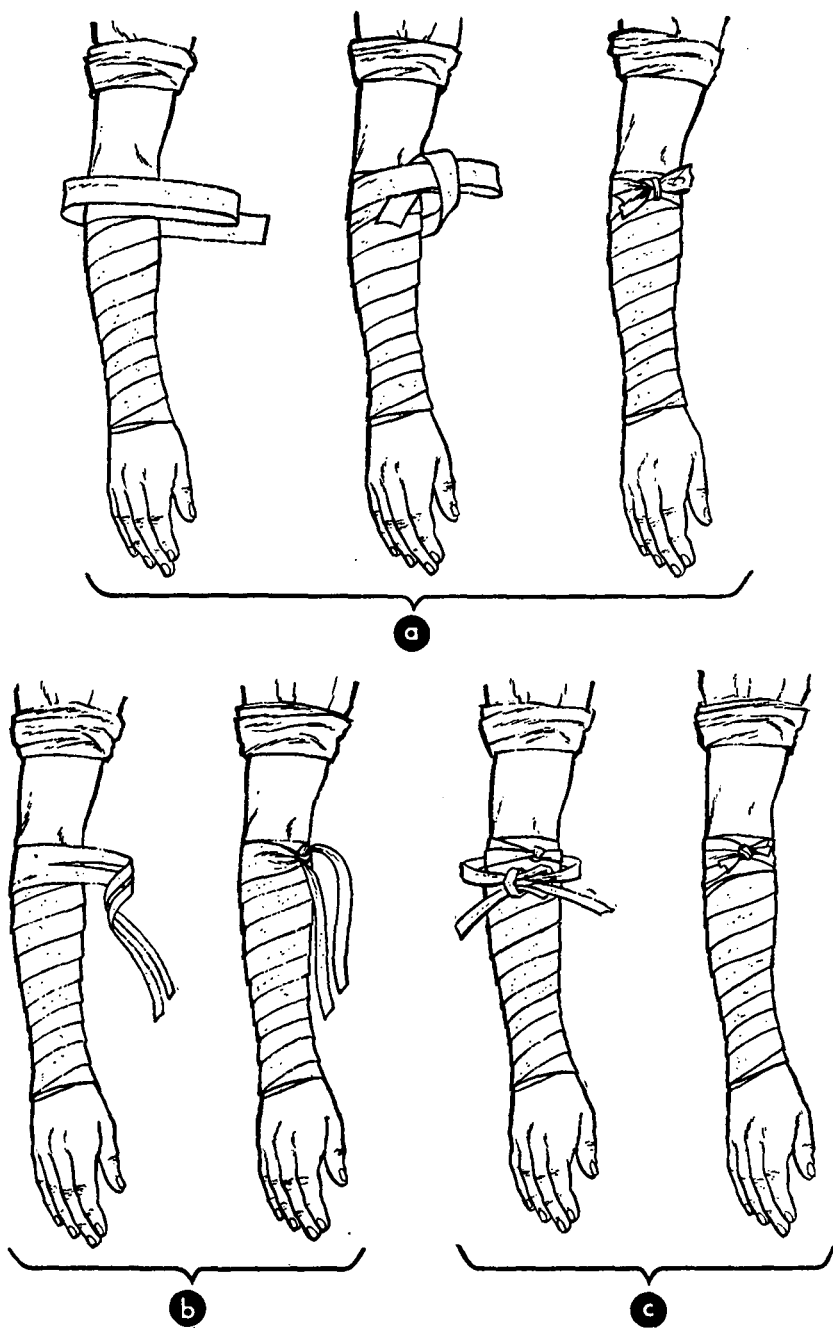


Figure 20. Fastening the bandage.

30. Circular Bandage (fig. 21)

A circular bandage is used to cover cylindrical parts and to anchor bandages. As illustrated (fig. 21), a turn is made around the part and anchored. Similar succeeding turns are made, overlying each other completely. The bandage is then terminated and secured.

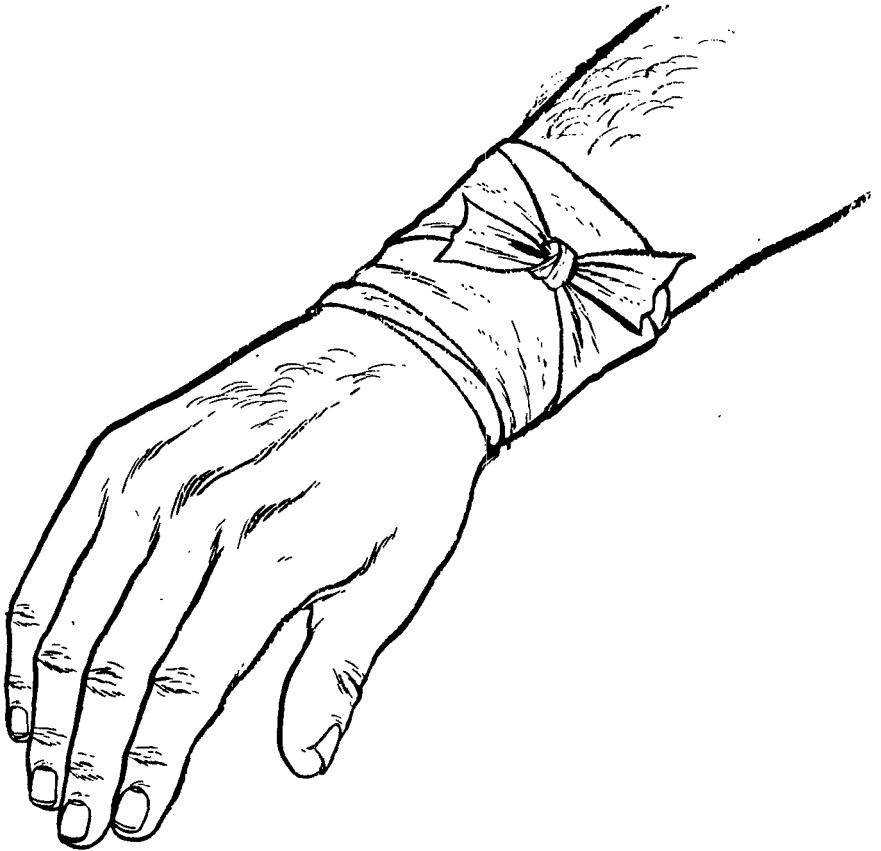


Figure 21. Circular Bandage.

31. Spiral Bandage (fig. 22)

A spiral bandage is also used to cover a cylindrical part, but covers a larger area than that covered by the circular bandage. It is applied to the arm; however, it can be used on other parts.

- a. Anchor at wrist.
- b. Apply succeeding spiral turns up the forearm, with each turn overlapping one-third of preceding turn.
- c. Terminate and secure just below elbow.

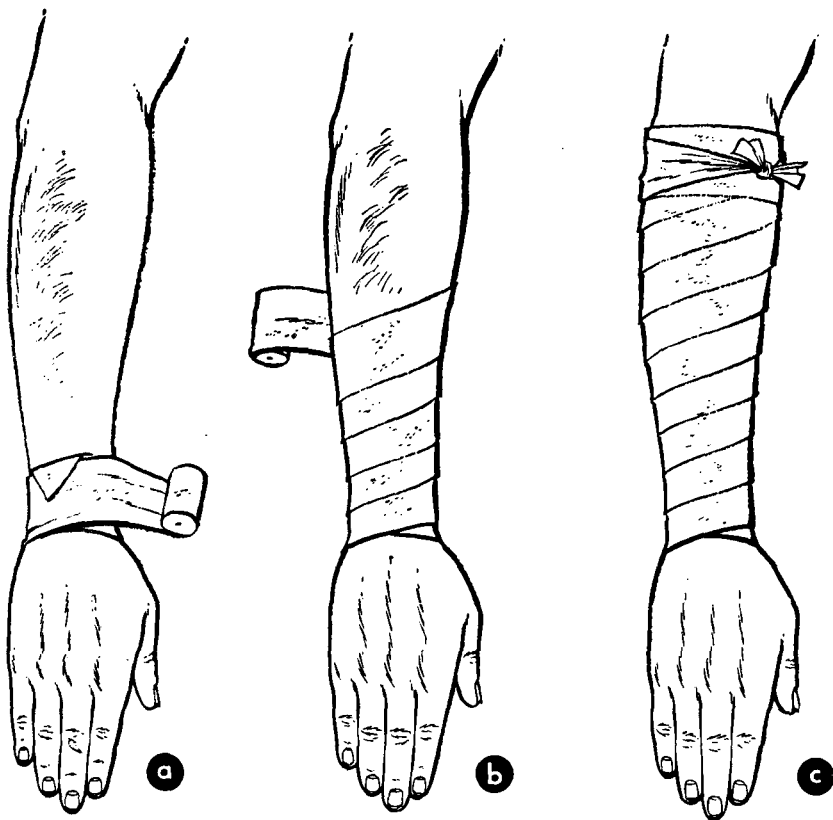


Figure 22. Spiral Bandage.

32. Oblique Bandage (fig. 23)

An oblique bandage is used for retention of thick dressings or temporary dressings which require frequent changes. As illustrated, it is applied to the arm; however, it can be used on other parts. Anchor at wrist, then apply a series of spiral turns around the forearm. Spaces between turns should equal the width of bandage. The bandage is then terminated and secured just below elbow.

33. Recurrent Bandage of Head with One Bandage (fig. 24)

This bandage is used to hold a dressing on the scalp.

a. Anchor bandage with several turns around the head, terminating behind head. At this point fold bandage upward, with assistant or patient holding fold in place with two fingers.

b. Continue bandage over top of head to center of forehead.

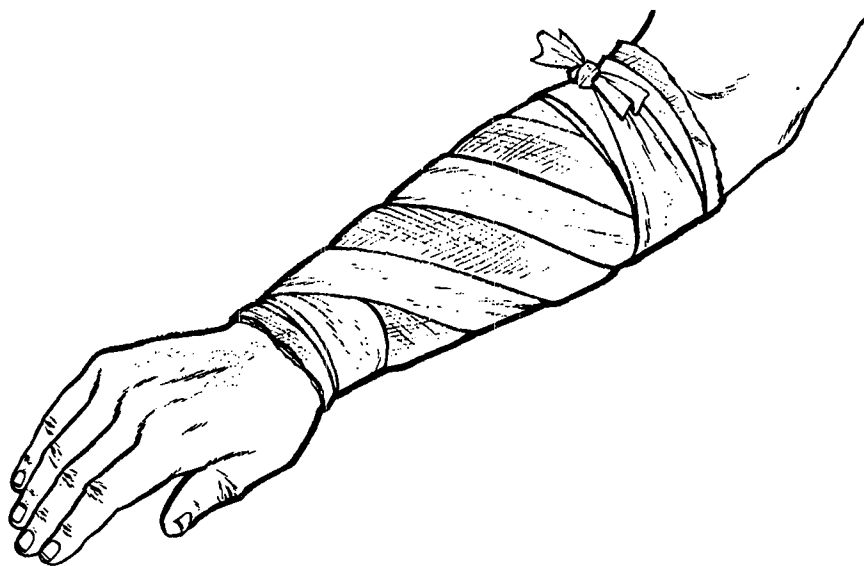


Figure 23. Oblique Bandage.

Fold bandage back at this point and hold it there with free hand. Carry bandage back to point held by assistant at rear of head.

c. Continue procedure until entire head is covered, turns alternating to the left and right of the center line and each turn overlying the outer half of the preceding turn.

d. Apply several circular turns around head, covering the ends of the initial turns, and secure.

34. Recurrent Bandage of Head with Two Bandages (fig. 25)

This bandage is used to hold dressings on scalp when assistance is not available.

a. Tie two bandages together with square knot. Place knot on forehead and bring both rolls back above ears.

b. Cross bandages at back of head, bringing roll No. 1 upward over top of head.

c. Continue roll No. 1 over top of head to forehead and bring roll No. 2 around head, over other bandage and around to side of head.

d. Bring roll No. 1 from forehead over top of head to nape of neck.

e. Bring roll No. 2 over folds of roll No. 1 at nape of neck juncture, and continue around head to front. Bring roll No. 1 back over top of head and repeat procedure, alternating to the left and right of the mid line, each turn overlying the outer half of the preceding turn.

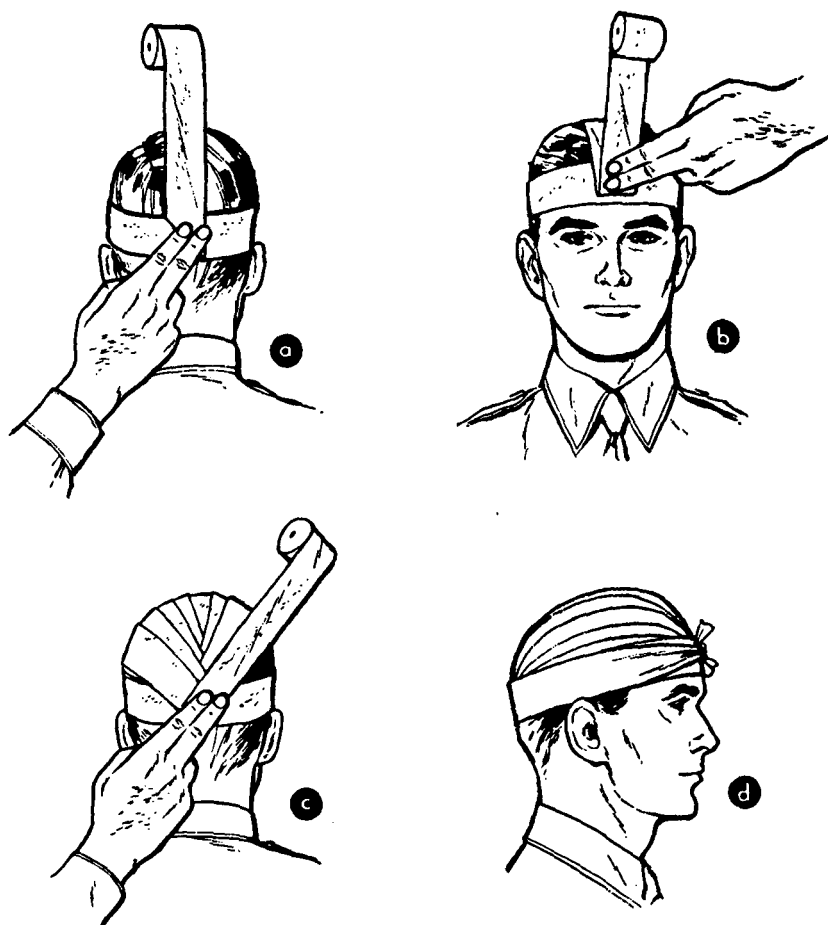


Figure 24. Recurrent bandage of head with one bandage.

f. Cover head, bring both rolls to front with several circular turns around head.

g. Secure the bandage.

35. Crossed Bandage of One Eye

(fig. 26)

This bandage is used to hold a dressing on the eye.

a. Anchor the bandage with circular turns around the head, then bring obliquely down across back of head.

b. Bring under ear on side of injured eye and obliquely up across cheekbone to bridge of nose, joining primary turn.

c. Continue around head for one turn.

d. Repeat procedure, each turn overlapping the upper two-thirds of preceding turn until eye is covered.

e. Apply circular turns around head, and secure.

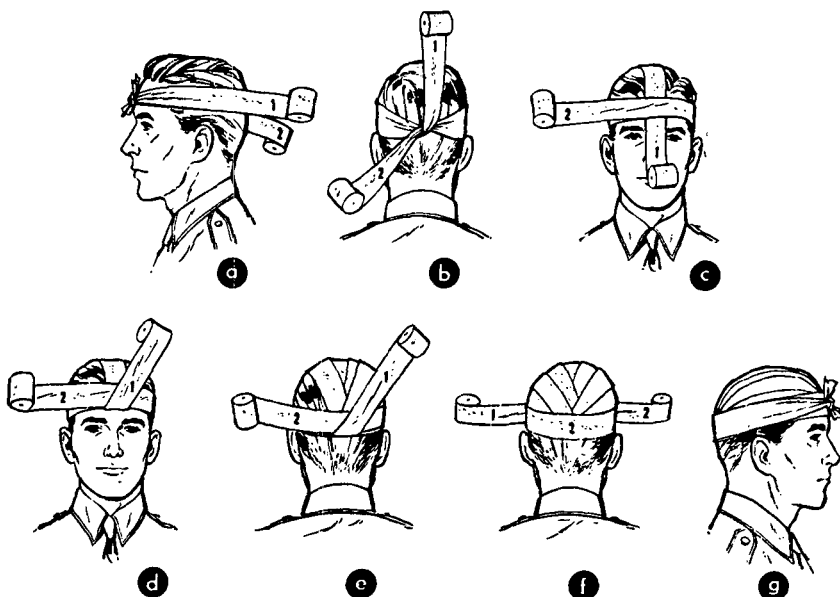


Figure 25. Recurrent bandages of head with two bandages.

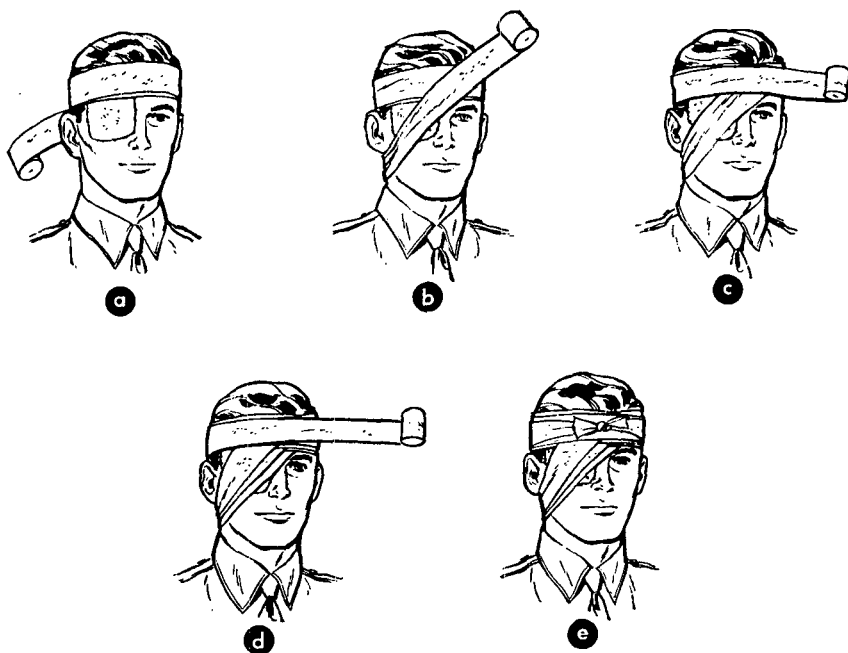


Figure 26. Crossed bandage of one eye.

36. Crossed Bandage of Both Eyes

(fig. 27)

This bandage is used to hold dressings on both eyes.

- a. Anchor bandage with circular turns around head.
- b. Continue obliquely down across back of head, under ear, and obliquely up across bone and bridge of nose, joining primary turn.
- c. Continue around head to forehead, then obliquely down across bridge of nose and cheek to point below other ear.
- d. Repeat procedure, each circular turn covering its predecessor, and each oblique turn overlying upper one-half or two-thirds of preceding turn.
- e. Continue until eyes are completely covered, apply circular turns around head, and secure.

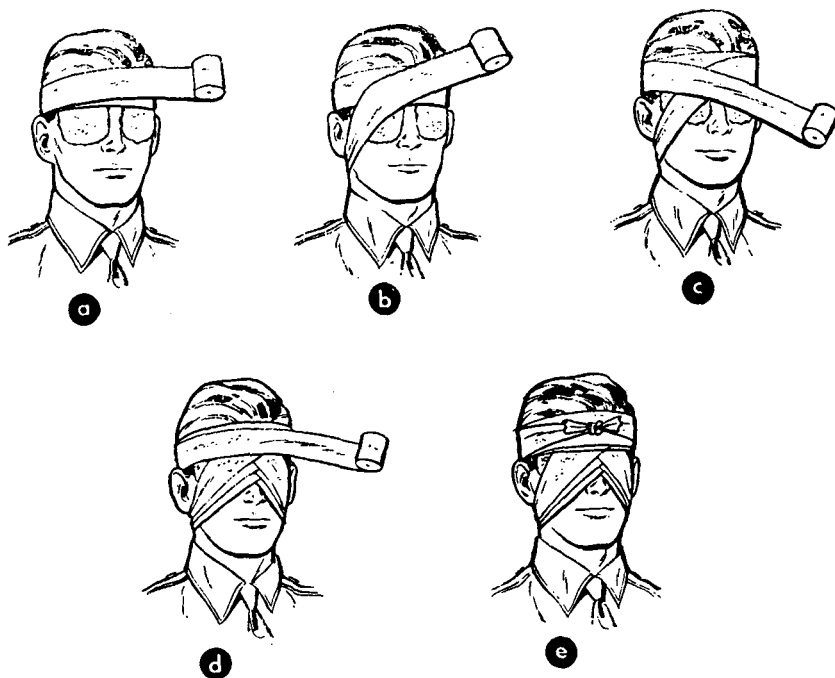


Figure 27. Crossed bandage of both eyes.

37. Bandage of Jaw (Modified Gibson Bandage)

(fig. 28)

The bandage of the jaw is used for a fracture of the jaw and to hold a dressing on the chin.

- a. Start bandage in front of ear, then bring over top of head and under jaw. Make several turns as needed.
- b. Anchor vertical bandage by making several horizontal turns around head.

c. Reinforce both loops with strips of adhesive placed in direction of loops. To prevent vertical turns under jaw from slipping, anchor with strips of adhesive tape across the front of the chin.

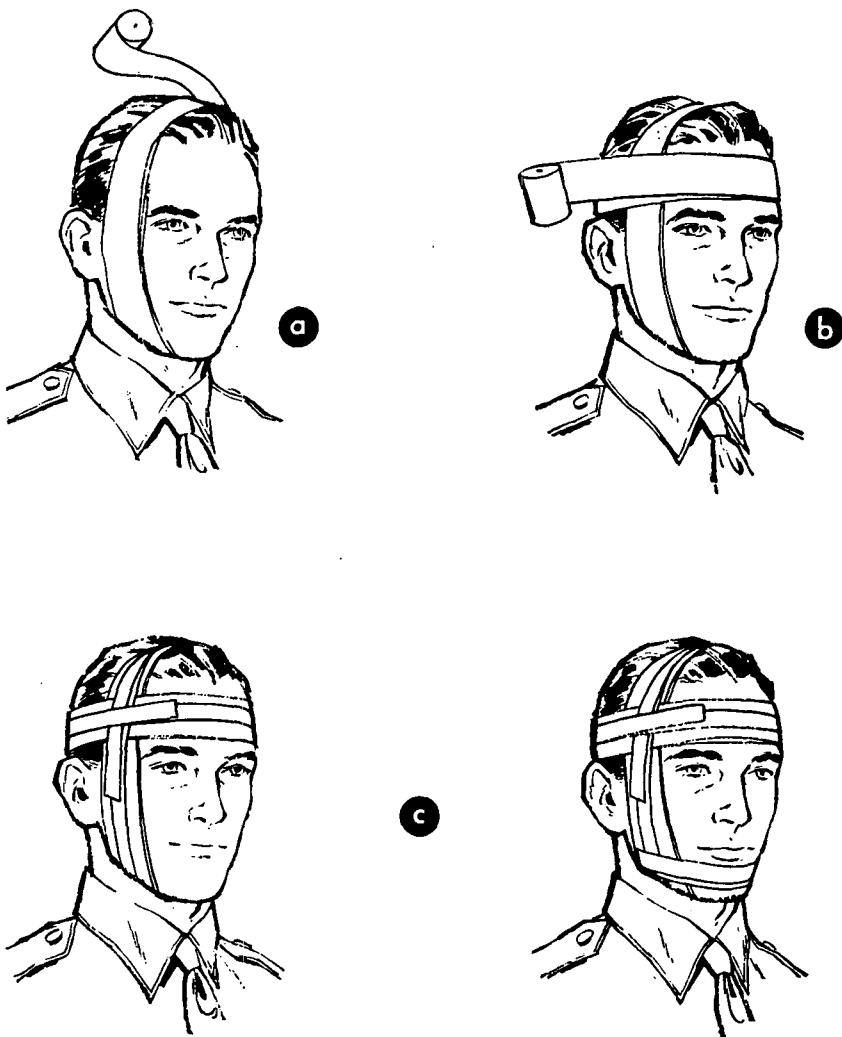


Figure 28. Bandage of jaw (modified Gibson bandage).

38. Spica of Shoulder (fig. 29)

The spica of the shoulder is used to retain dressings of the shoulder and armpit.

a. Pad the axilla well and anchor by several circular turns around upper arm on injured side.

b. Carry across back to armpit of opposite side; then across chest obliquely to top of primary turns.

c. Carry around arm, under armpit, and upward toward shoulder. Repeat procedure, each turn overlying about two-thirds of preceding turn.

d. Continue until entire shoulder is covered. The line of crossings on the shoulder be straight and should pass over the point of the shoulder. Secure with safety pin or adhesive tape.

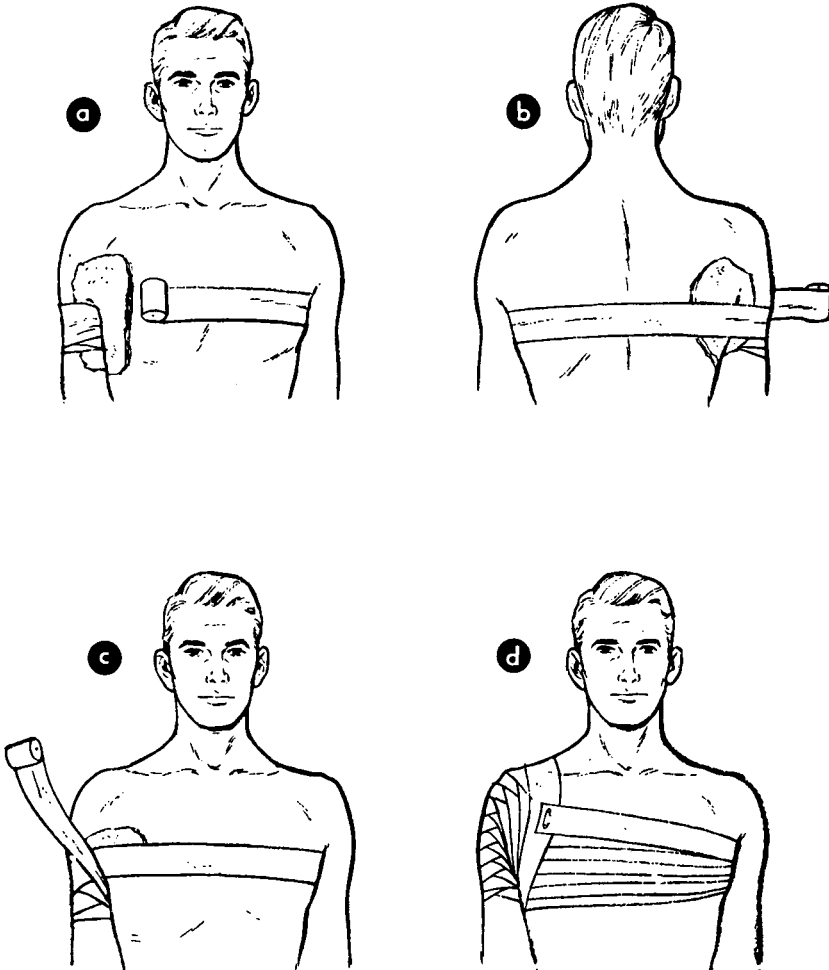


Figure 29. Spica of shoulder.

39. Figure-of-Eight of Clavicle (fig. 30)

This bandage is used to hold the shoulders back in a fracture of the collarbone. As illustrated, pads are applied to axillary region to keep bandage from obstructing circulation. End of bandage is placed between shoulder blades and roll is carried obliquely over

shoulder, under armpit, across back, over opposite shoulder, and under armpit. This procedure is repeated until shoulders are drawn back securely. The bandage is then terminated and secured.

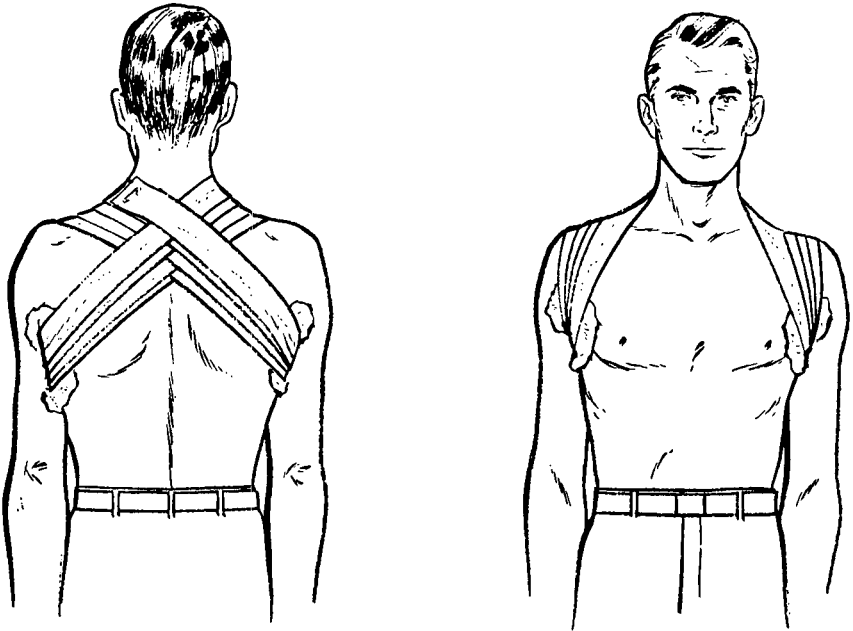


Figure 30. Figure-of-eight of clavicle.

40. Velpeau (fig. 31)

The velpeau is used for holding arm and forearm in fixed position in the treatment of fractures and dislocations of the shoulder.

a. Place fingers of affected side on opposite shoulder, with pad in armpit and skin surfaces separated by sheet wadding. Start bandage in the middle of the patient's back, approximately at the waist. Bring bandage up from waist and over affected shoulder.

b. Continue down shoulder and upper arm, then under elbow and around front of waist.

c. Continue around back of waist, crossing the starting end to anchor bandage.

d. Circle waist over bent elbow.

e. Bring obliquely up across back.

f. Repeat procedure, each turn ascending and overlapping two-thirds of preceding turn. Terminate with circular turns over arm, forearm, and chest, and secure.

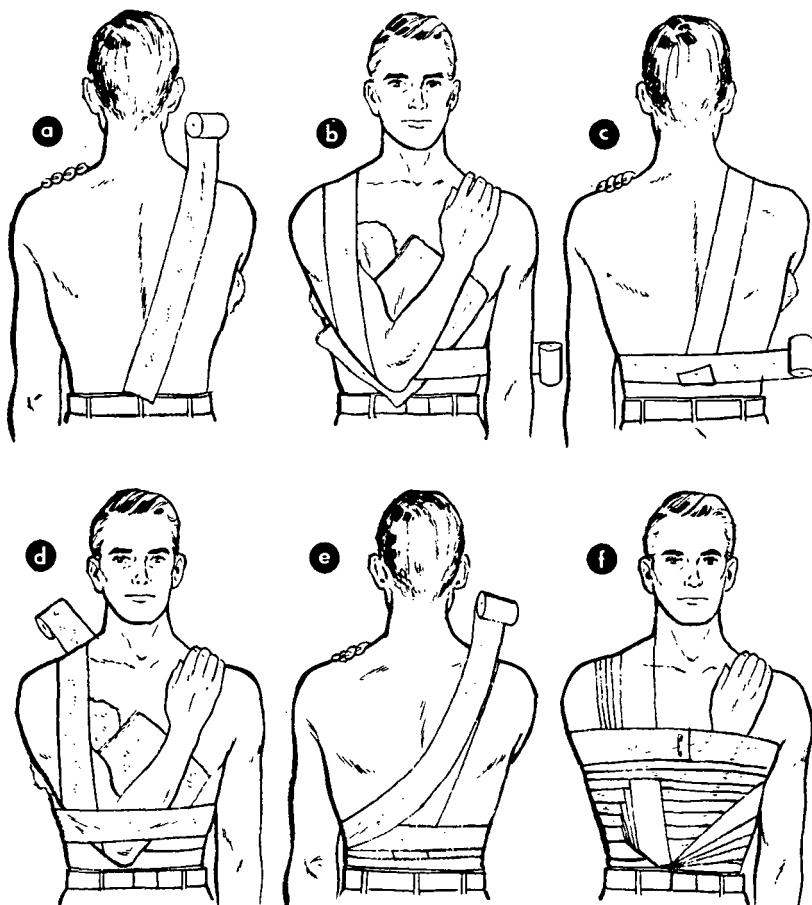


Figure 31. Velpeau.

41. Figure-of-Eight of Hand (fig. 32)

This bandage is used to hold dressings on back or palm of hand.

a. Anchor bandage on hand with circular turns near ends of fingers. Carry obliquely across back of hand to thumb. Bring under thumb and across palm to back of hand.

b. Carry obliquely across back of hand to bottom of primary turn and across palm.

c. Follow with several similar turns, each one overlying about two-thirds of preceding turn on back of hand. After sufficient turns, terminate with circular turns around wrist and secure.

42. Figure-of-Eight of Forearm (fig. 33)

The figure-of-eight of forearm is used to retain dressings or

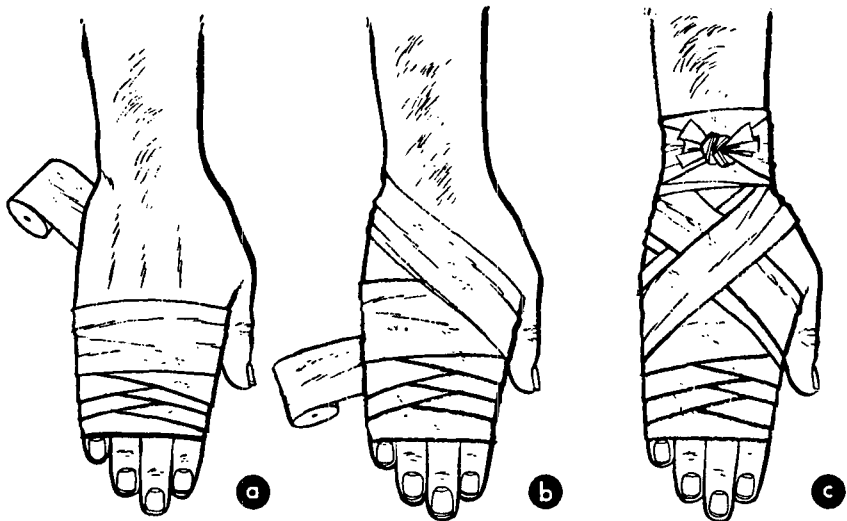


Figure 32. Figure-of-eight of hand.

secure splints on the forearm. This may start as a continuation of figure-of-eight of hand, or with primary circular turns of wrist. (Illustration shows continuation of figure-of-eight of hand.)

- a. Carry spirally upward around forearm.
- b. Apply circular turn just below elbow.
- c. Then carry spirally downward around forearm forming X with upward turn.
- d. Repeat procedure, each turn overlapping one-half or two-thirds of preceding turn.
- e. When forearm is covered, terminate below elbow, and secure.

43. Spiral Reverse of Forearm (fig. 34)

The spiral reverse of forearm is used to hold dressings or secure splints on the forearm. It is a modification of the figure-of-eight.

a. Anchor at wrist with primary turns in usual way, bring bandage obliquely up forearm to just below elbow, and make a circular turn.

b. Bring obliquely downward to wrist, and circle wrist. (These turns hold the dressing while the spiral reverse is being applied.) Then start the bandage obliquely upward again.

c. Instead of continuing upward as in a figure-of-eight, fold bandage back and hold fold with thumb.

d. Continue around arm and repeat procedure until arm is covered. Each turn must overlies about two-thirds of preceding turn and reverses must be in a straight line.

e. Terminate with circular turns below elbow and secure.

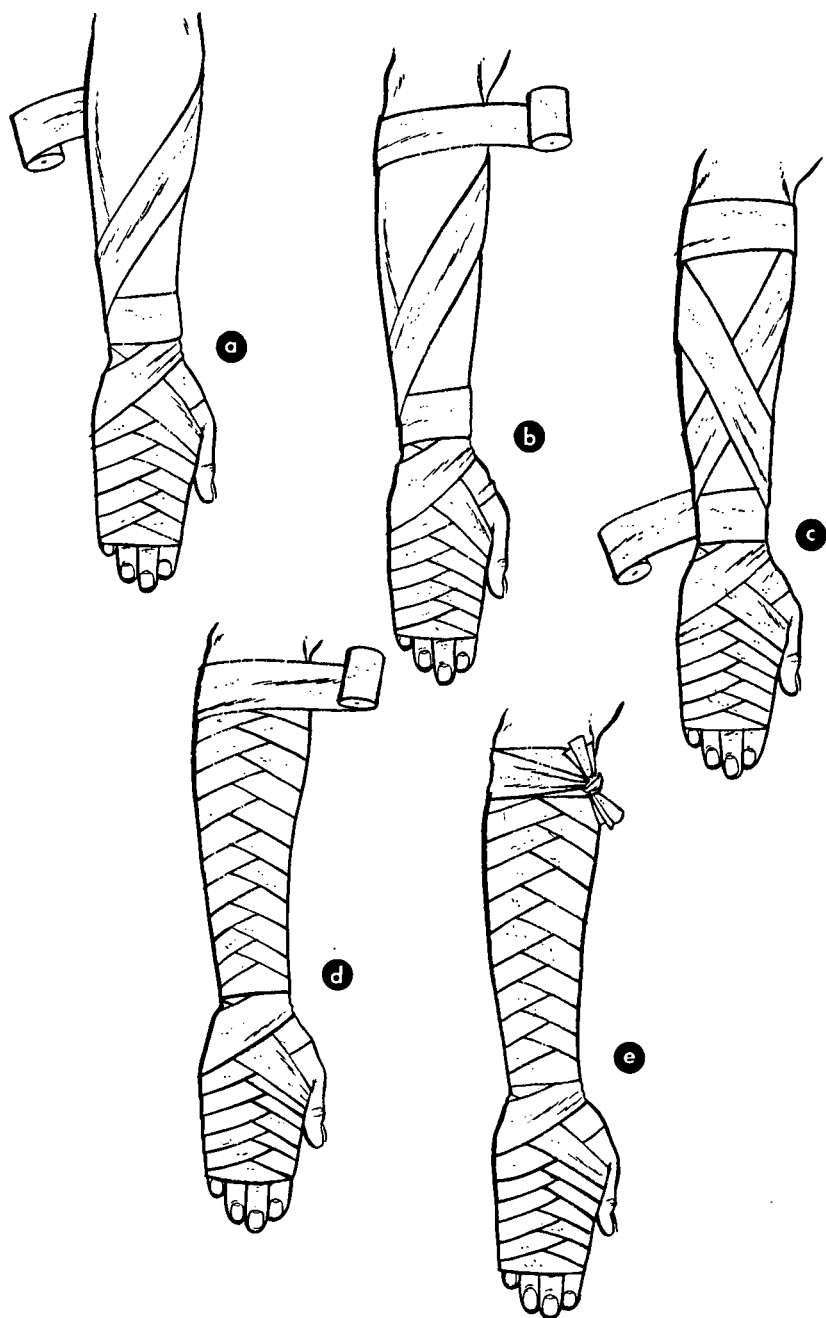


Figure 33. Figure-of-eight of forearm.

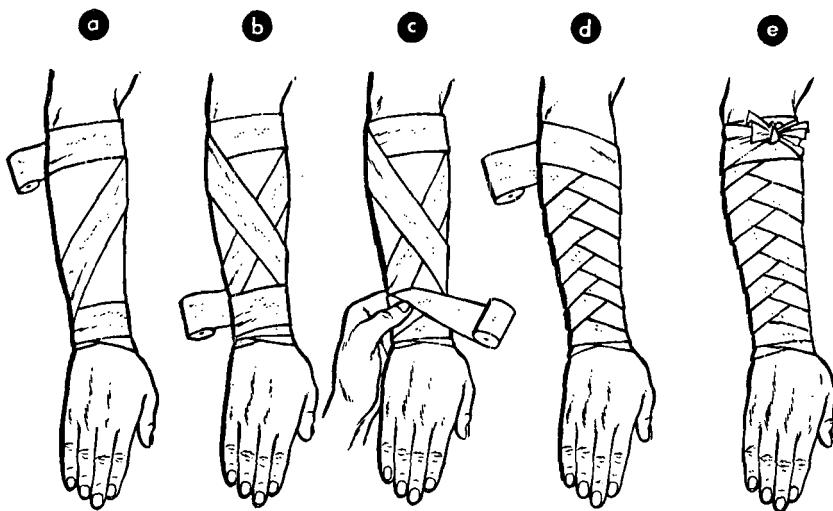


Figure 34. Spiral reverse of forearm.

44. Figure-of-Eight of Elbow (fig. 35)

This bandage is used to hold a dressing in the triangular hollow in front of elbow joint (ante-cubital fossa).

a. Anchor with circular turn above elbow and carry bandage obliquely downward over hollow of elbow.

b. Circle forearm below elbow to anchor, bring obliquely upward over hollow of elbow, and pass around upper arm at primary circle.

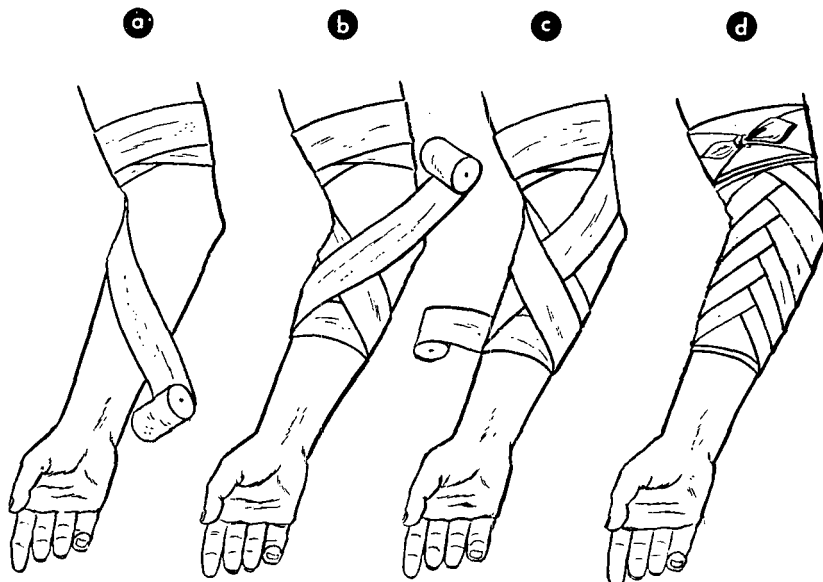


Figure 35. Figure-of-eight of elbow.

- c. Repeat procedure with oblique turns progressing up forearm, each turn overlapping preceding turn by two-thirds.
- d. Terminate at starting point, and secure.

45. Front of Elbow Bandage (fig. 36)

This bandage is also used to hold dressings on the ante-cubital fossa. Unlike the figure-of-eight of the elbow, this bandage leaves back of elbow exposed. It allows movement of joint without disturbing the dressing. Anchor bandage with circular turns around forearm below elbow. Carry bandage obliquely upward over hollow of elbow, and circle arm just above elbow. Bring obliquely downward over hollow of elbow, and pass around forearm at primary circle. Repeat procedure until hollow of elbow is covered, each oblique turn overlapping preceding oblique by three-fourths and each circular turn overlying each preceding circular turn. Terminate at circular turns above elbow, and secure.

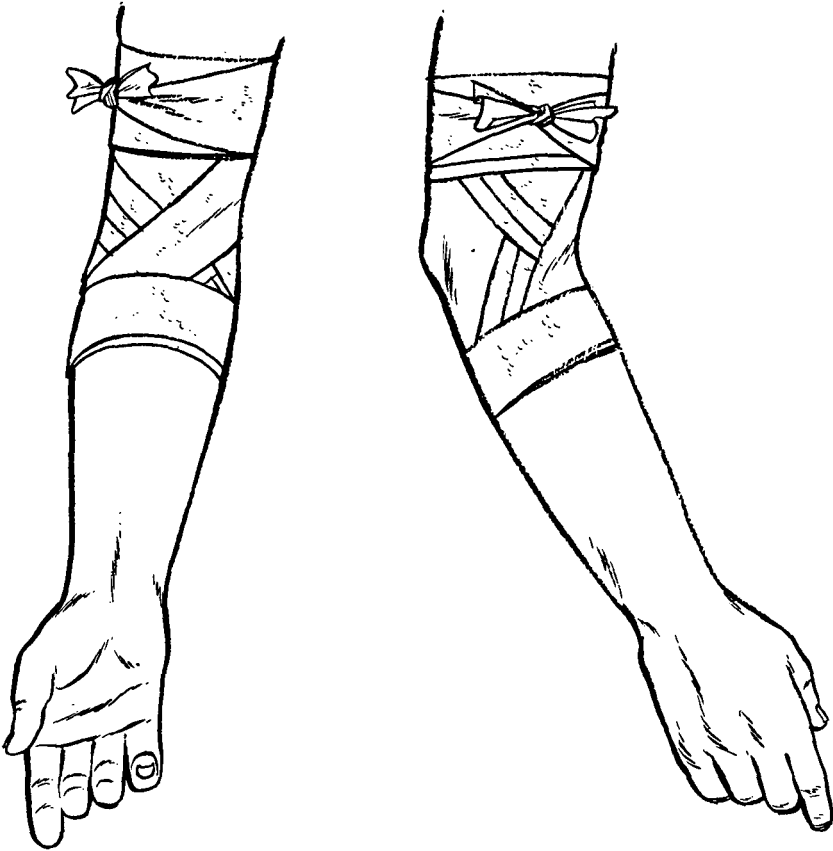


Figure 36. Front of elbow bandage.

46. Demigauntlet Bandage (fig. 37)

The demigauntlet bandage is used to hold dressings on back of hand, with palm and fingers exposed.

- a. Anchor with primary turns at wrist. Bring bandage back of hand to space between fourth and little finger; then around base of little finger and across back of hand to wrist.
- b. Circle wrist and repeat on other fingers involved.
- c. Terminate at wrist, and secure.

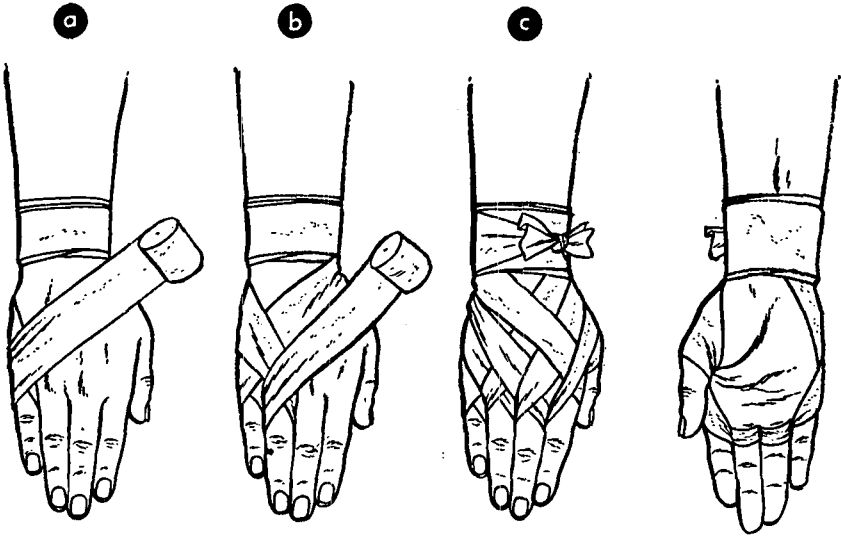


Figure 37. Demigauntlet bandage.

47. Gauntlet Bandage (fig. 38)

The gauntlet bandage is used to hold dressings on back of hand and fingers.

- a. Anchor with primary turns at wrist. Bring bandage back of hand to space between fourth and little finger, then spirally down little finger.
- b. Bring bandage up little finger with spiral, then across back of hand to wrist.
- c. Repeat procedure with each finger involved, terminate at wrist and secure.

48. Complete Bandage of Hand (fig. 39)

This bandage is used to retain dressings covering entire hand. Make certain gauze dressing is placed between each injured finger.

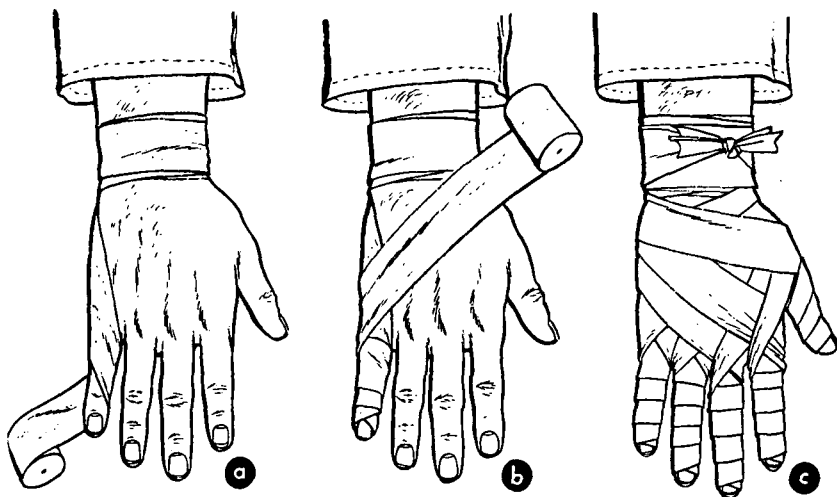


Figure 38. Gauntlet bandage.

a. Anchor at wrist, then fold bandage back, and bring over back of hand to tip of forefinger.

b. Continue over front of finger and palm to wrist, repeating procedure four or five times, covering all involved fingers, except the thumb. (Hold folds at wrist until next step.)

c. Circle around folds at wrist to secure them.

d. Then bring bandage obliquely across back of hand to tip of fingers.

e. Make circular turn near ends of fingers.

f. Continue with figure-of-eight.

g. Terminate with several circular turns around wrist and secure.

49. Finger Bandage (fig. 40)

The finger bandage is used for holding dressing on finger.

a. Anchor bandage at wrist. Bring over back of hand and make one complete turn at base of injured finger over dressing. Make spiral turn to tip of finger to hold dressing while applying bandage.

b. Make another spiral turn back to base of finger.

c. Complete bandage with figure-of-eight, progressing from tip to finger base. Terminate with circular turns around wrist and secure.

50. Recurrent Bandage of Stump (fig. 41)

The recurrent bandage of the stump is used to hold dressing around stump of arm, of leg, or finger. To hold dressing on leg, first anchor bandage below knee with circular turns of bandage.

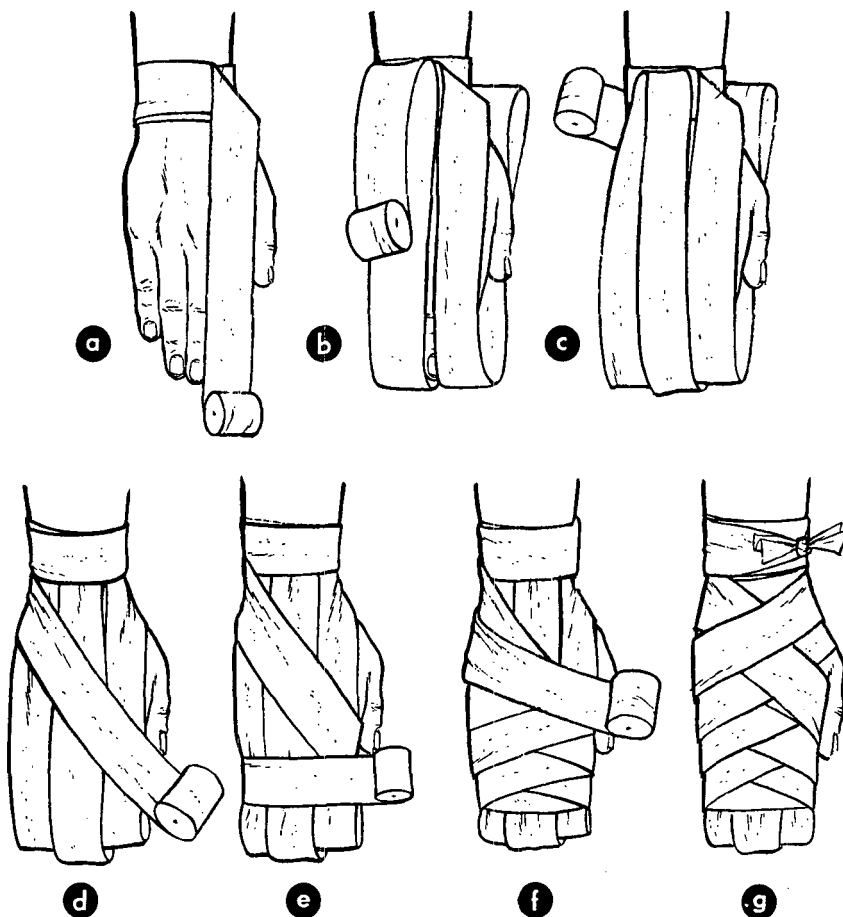


Figure 39. Complete bandage of hand.

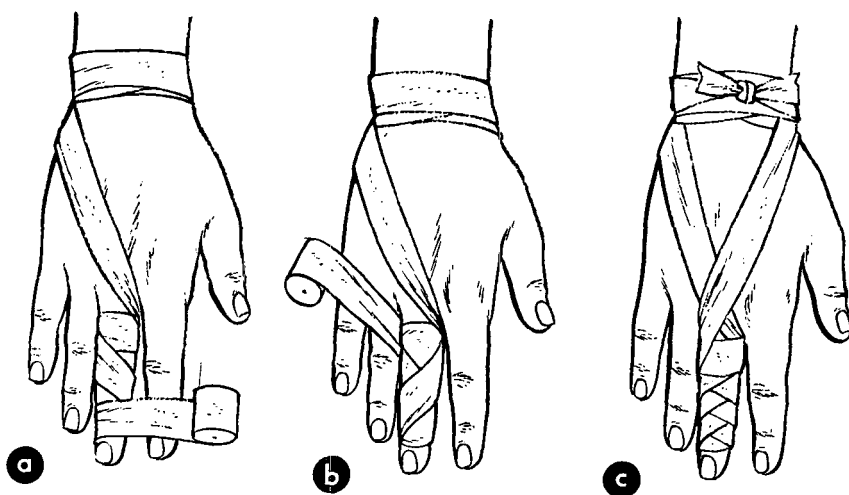


Figure 40. Finger bandage.

a. Hold dressing in place with loose spiral turns down and up stump, securing spirals with circular turn below knee.

b. Fold bandage at right angle at knee and carry over outer half of stump, down, and then under stump. Continue bandage back to knee, reverse, and carry over stump again, now covering inner half.

c. Repeat procedure, now covering middle of stump. It is advisable to place several additional turns over stump in manner described above.

d. Carry several turns around base of folds to secure them in place.

e. Cover loops with spiral to end of stump.

f. Complete bandage with figure-of-eight, progressing from end of stump to knee. Terminate with circular turns just below knee, and secure.

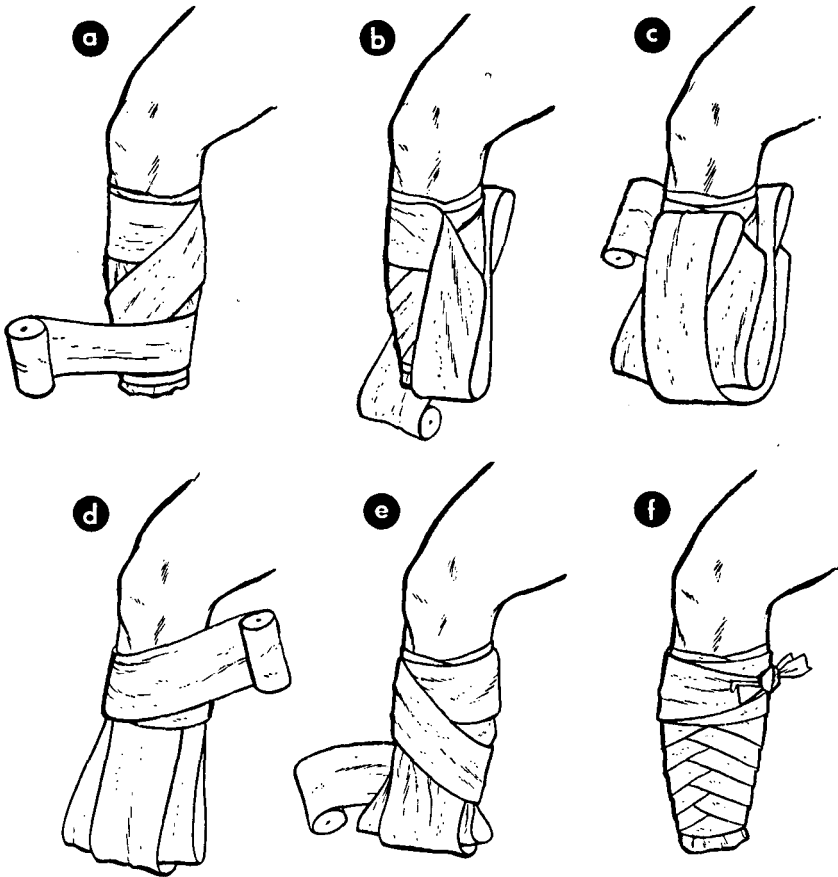


Figure 41. Recurrent bandage of stump.

51. Spica of Foot (fig. 42)

The spica of the foot is used to hold dressings on foot, and for support of sprained ankle.

- a. Anchor around foot near base of toes. Carry obliquely across instep and around heel. Continue obliquely across instep, crossing preceding turn to base of large toe.
- b. Repeat procedure, turns gradually ascending on both foot and heel, crossings being in line along middle of instep.
- c. Continue procedure in *b* above.
- d. Terminate above ankle, and secure.

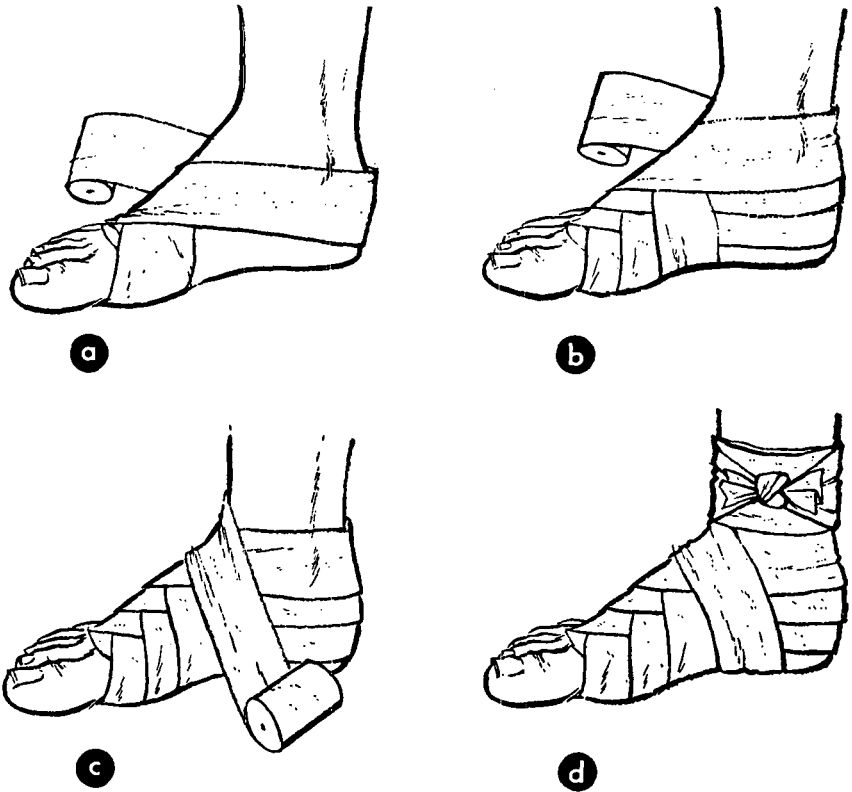


Figure 42. Spica of foot.

52. Figure-of-Eight of Foot with Heel Exposed (fig. 43)

This bandage is used to hold dressings on foot.

- a. Anchor just above ankle, bring bandage obliquely across instep to base of large toe, with turn around base of toes.
- b. Continue obliquely across instep to point of beginning.

c. Repeat procedure, leaving heel exposed, with turns ascending until arch and instep are covered. Terminate at starting point, and secure.

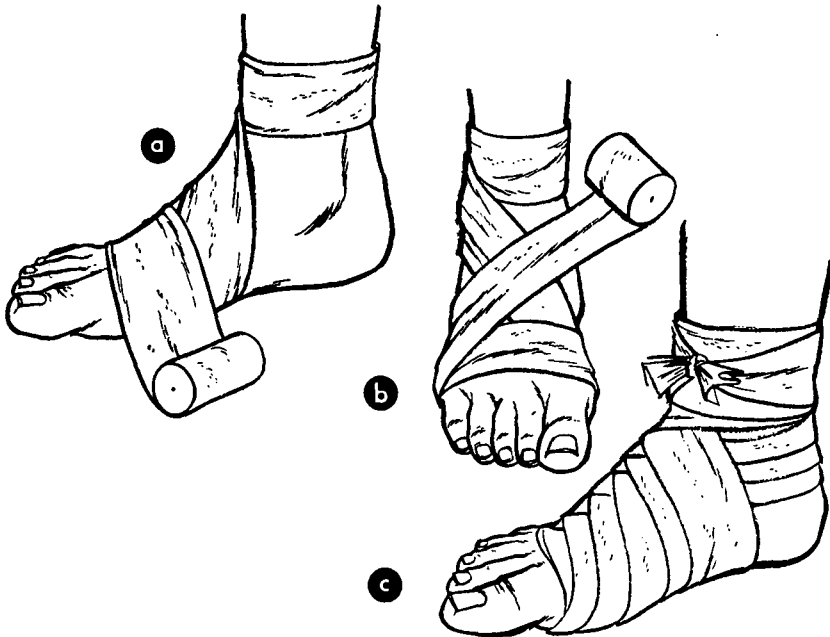


Figure 43. Figure-of-eight of foot with heel exposed.

Section IV. TAILED BANDAGES

53. Types and Uses (fig. 44)

Tailed bandages consist of the T-bandage, the double T-bandage, the four-tailed bandage, and the many-tailed bandage. These bandages are used to secure dressings to parts which do not lend themselves to roller bandage applications.

a. The T-bandage is a T-shaped bandage consisting of a vertical strip of material sewn or pinned to the center of a horizontal strip. This bandage may be used as a scalp, ear, eye, or perineum bandage.

b. The double T-bandage may be made by sewing two vertical strips of material to the center of a horizontal strip and about 4 inches apart. The double T-bandage may be used to hold dressings on the chest, back, or perineum.

c. The four-tailed bandage is a piece of material 4 to 6 inches wide and about 30 inches long with each end cut about 12 or 14

inches down its middle, leaving the center piece about 12 or 14 inches in length. The four-tailed bandage is used to hold dressings on the jaw, nose, forehead, and the back of the head.

d. The many-tailed bandage is similar in construction to the four-tailed bandage, except that the ends are cut into the desired number of tails about 16 inches in length and the uncut portion is about 20 inches in length.

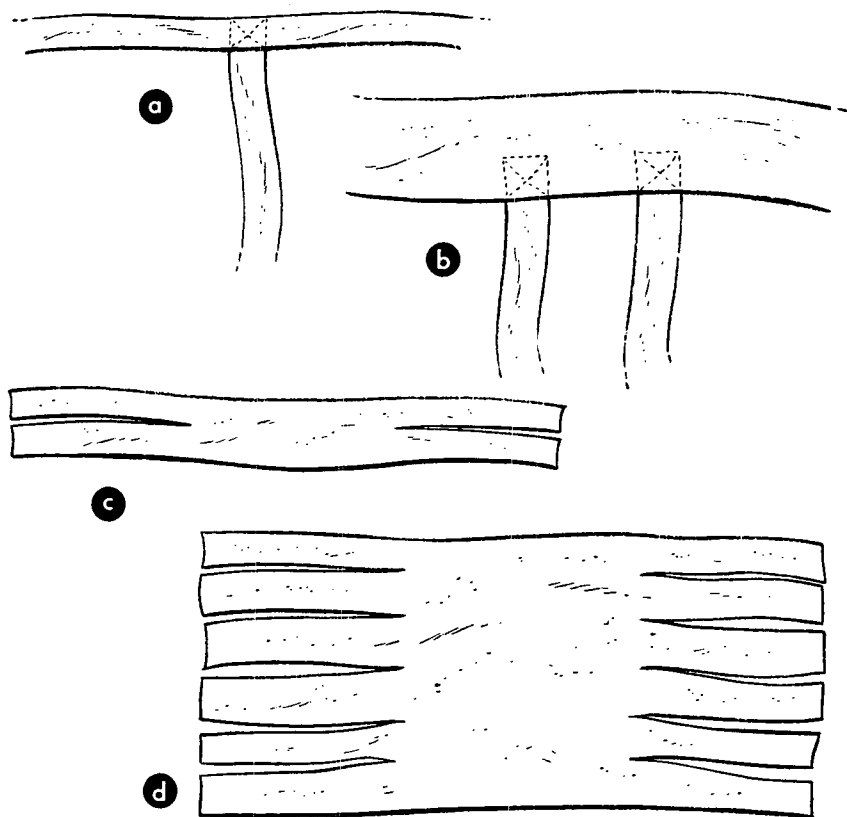


Figure 44. Tailed bandages.

54. T-Bandage of the Scalp (fig. 45)

The T-bandage of the scalp is used to hold dressings on the scalp, the side of the head, or the back of the head. A T-bandage 2 or 3 inches wide is used. As illustrated the junction of the horizontal and vertical strips is placed over the center of the back of the head just above the ears. The horizontal ends are brought around to the forehead, and the vertical end across the top of the head. The three ends are then tied.

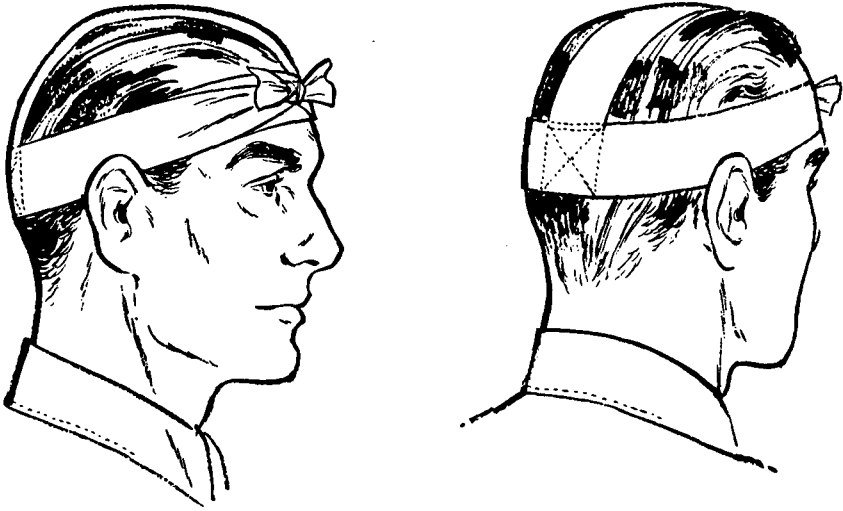


Figure 45. T-bandage of the scalp.

55. Double T-Bandage of the Chest (fig. 46)

A double T-bandage is made as described in paragraph 53*b*, with the horizontal strip about 8 or 10 inches wide and long enough to encompass the chest, and the two vertical strips about two inches wide and 12 inches long. If the wound is high upon the chest or

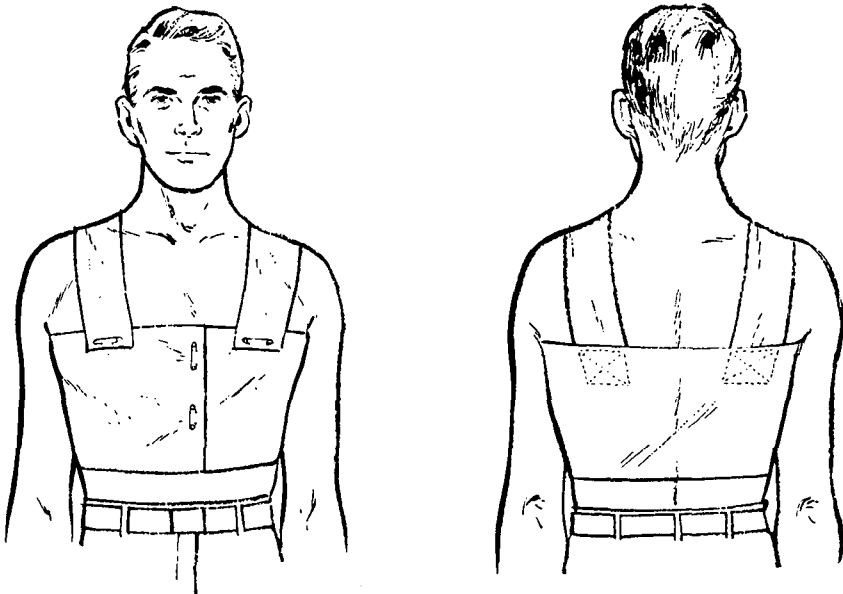


Figure 46. Double T-bandage of the chest.

back, an armhole can be cut on each side of the upper edge of the horizontal strip of the bandage. As illustrated (fig. 46), the wide strip is secured around the chest well up in the axilla. The two vertical strips are brought over the shoulders and secured to the upper edge of the wide strip.

56. Four-Tailed Bandage of the Nose (fig. 47)

This bandage is used for holding a dressing around the nose. A four-tailed bandage of the desired length and width is used.

a. Split the bandage lengthwise from each end to within 3 or 5 inches of the center of the strip.

b. Place the top of the center over nose, carry the two upper ends under ears and around to nape of neck, and tie.

c. Fold the bottom of the center under nose, carry the two lower ends above ears to top of head, and tie.

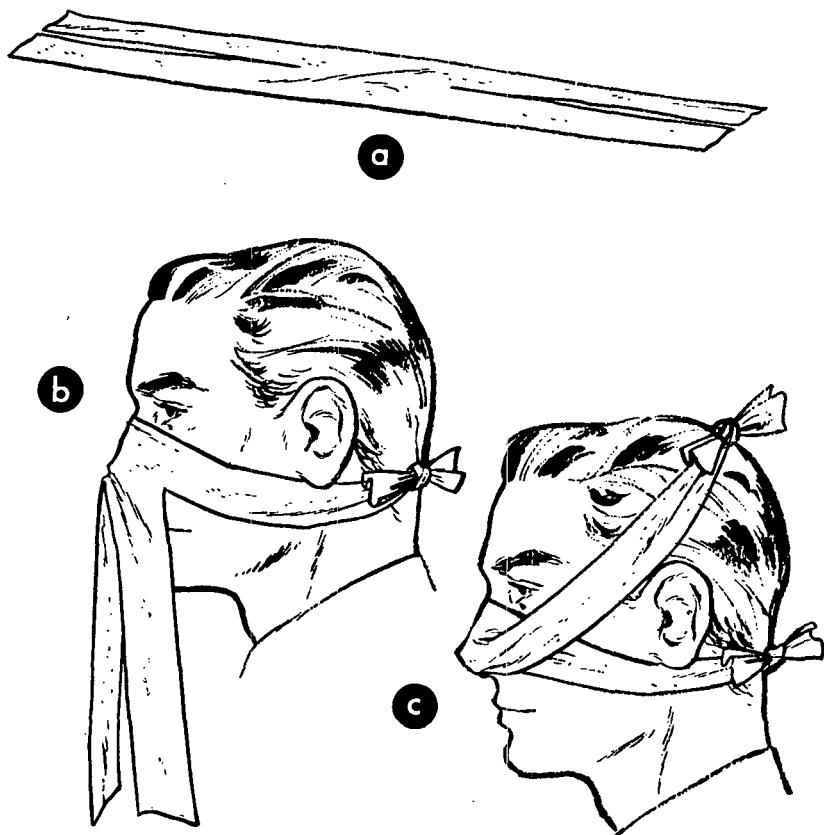


Figure 47. Four-tailed bandage of the nose.

57. Four-Tailed Bandage of the Jaw (fig. 48)

The four-tailed bandage of the jaw is used for holding a dressing on the chin or jaw. A bandage of desired length and width is used.

a. Split bandage lengthwise from each end to within 3 or 4 inches of center of strip. Place top of center over chin, carry two upper ends along each side of jaw, and tie at nape of neck.

b. Fold bottom of center under chin, carry two lower ends upward from under the chin and along each side of face in front of ears, and tie on top of head.

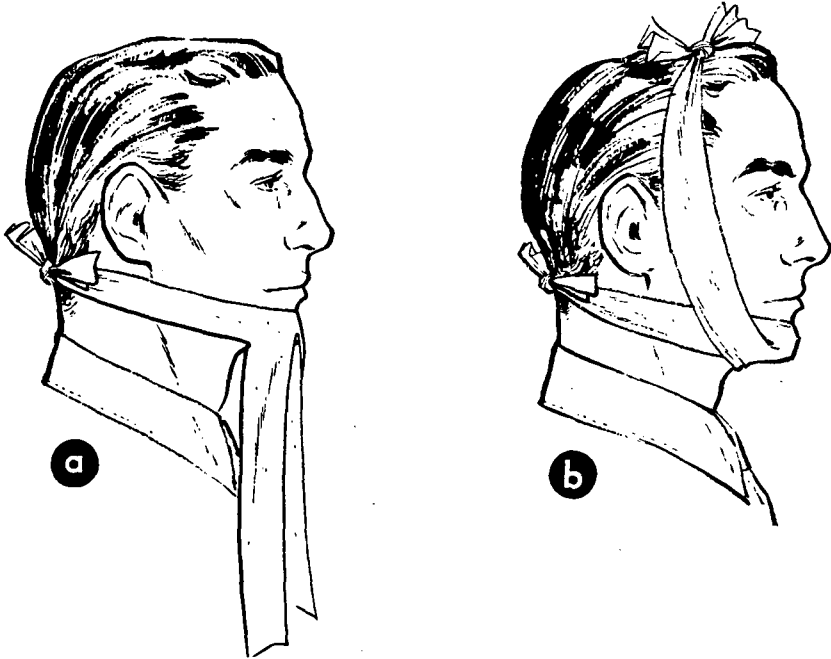


Figure 48. Four-tailed bandage of the jaw.

Section V. PLASTER OF PARIS BANDAGES

58. Purpose

Plaster of paris bandages are used to immobilize the involved part of the body in the treatment of fractures, as well as for fixation and treatment of injuries and diseases of joints.

59. Preparation of Plaster of Paris Bandages (fig. 49)

Plaster of Paris bandages are prepared by impregnating the meshes of crinoline gauze with plaster of paris. Two methods of preparation are discussed in this paragraph; however, it should be

pointed out that ready-made bandages are procured and supplied by the Army Medical Service.

- a. (1) Tear crinoline the desired width and pull loose threads from each side.
- (2) Roll strip loosely on dowel stick or similar piece of wood.
- (3) Unroll about 3 feet of crinoline on flat surface, and work plaster of paris gently into mesh with palm of hand, spatula, or tongue depressor. Roll loosely on dowel stick.
- (4) Repeat process with next 3 feet of bandage and continue until entire bandage is impregnated with plaster.
- (5) Remove stick and wrap bandage in waterproof paper, if not to be used immediately.
- b. Plaster of paris bandages can also be quickly and satisfactorily made by using a box 10 inches long, 5 inches wide, and 3 inches deep, with top and bottom removed.
- (1) Cut a small slot approximately $\frac{1}{8}$ -inch to $\frac{1}{4}$ -inch deep and 5 inches long at the bottom of each end of the box.
- (2) Place box on flat surface and pull end of bandage through the two slots so that it protrudes for a distance of about 1 inch.
- (3) Place plaster of paris in box to about one-half its depth.
- (4) Pull bandage through slots, impregnating bandage with layer of plaster.
- (5) Roll bandage on dowel stick or similar piece of wood.
- (6) Repeat process until entire bandage has passed through box of plaster.
- (7) Remove stick and wrap bandage in waterproof paper, if not to be used immediately.

60. Application of Plaster of Paris Bandages (fig. 50)

The fundamental rules for the application of plaster of paris bandages are based on certain technical points involved in the process of application. These technical points, which are brought out in the rules which follow, must be observed if plaster bandages are to be properly applied.

a. Cover the part to be encased with a suitable bandage of soft material, being careful to protect bony prominences and to remove all creases.

b. Place plaster bandage roll in warm water, handling carefully so as to avoid shaking out the plaster. (Warm water is used to speed up setting of plaster.) Place the roll on end so that resultant air bubbles can easily escape from within the roll through its upper end. When bubbles cease to rise, remove roll from water. Remove excess water by grasping the roll at its two ends and press-

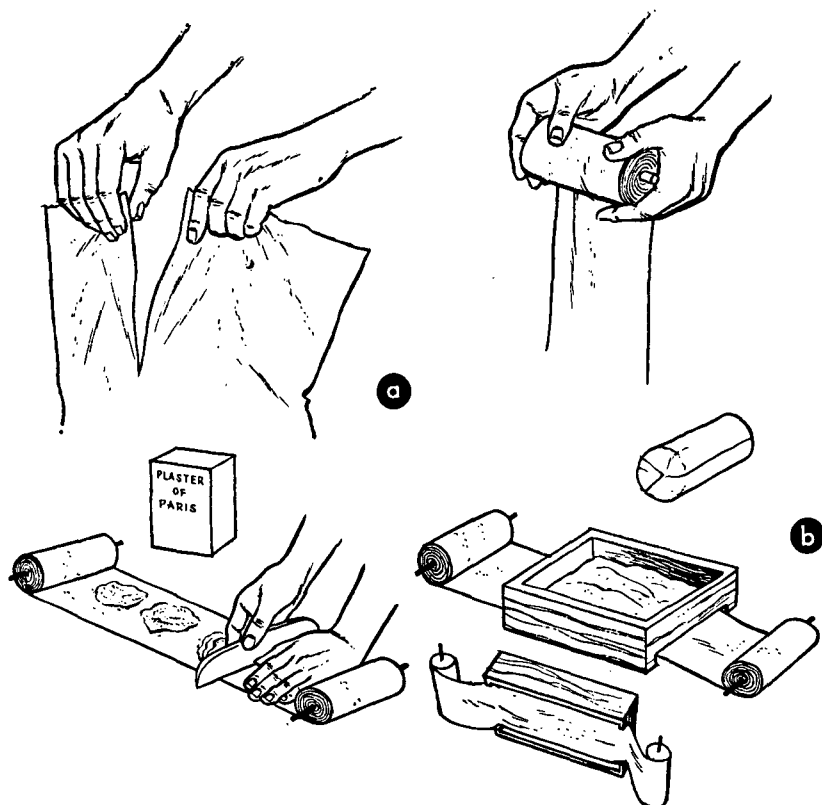


Figure 49. Preparation of plaster of paris bandages.

ing toward the center to prevent excessive loss of plaster. If too much water is left in the roll, the cast will be weak; if the roll is too dry, the bandage cannot be applied with the ease required for accurate and rapid bandaging. As soon as bandage is removed from water, replace with another.

c. Apply bandage rapidly and evenly, and with a minimum of pull to avoid constriction by the edges of the bandage. Apply bandage spirally up and down entire length of extremity or body part involved, making each turn conform to the part without tension. Do not twist. In changing the direction of the bandage, tuck or cut and start again. The bandage is never reversed. Take tucks in the leading or rear edges of the bandage to get smooth coverage over irregularities of the body part. During the application, smooth out each successive turn, always in the same direction, to provide a smooth, even surface. Apply as many bandages as necessary to obtain a cast of desired strength. When the final roll has been applied, rub surface of the completed cast evenly with liquid plaster, prepared by addition of water to dry plaster, until it has

the consistency of thick cream. Rub bony prominences and depressions with rotary motion of the palm to get accurate fit. In all recent injury cases that are to be evacuated, split the plaster casts on both sides (completely bivalved). To remove plaster of paris cast, cut with plaster of paris shears, or soften with small amount of hydrogen peroxide solution, hydrochloric acid, or vinegar, and then cut with a knife.

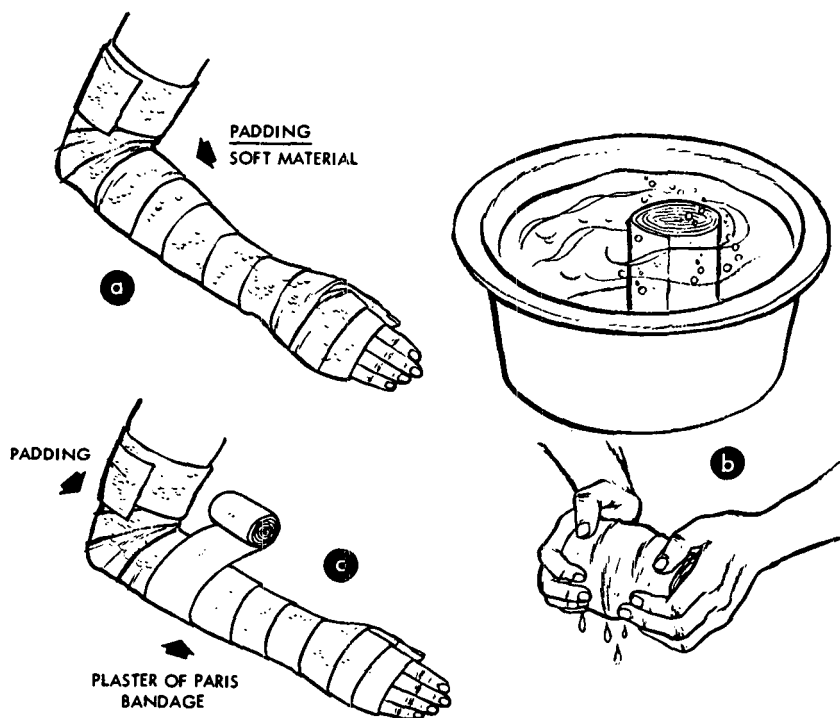


Figure 50. Application of plaster of paris bandages.

CHAPTER 3

DRESSINGS

61. General

A dressing is a sterile pad, compress, sponge, or piece of material that is applied directly over a wound for the promotion of its proper healing. Since it is for use directly over an open wound, a dressing must be sterile; it must not only be clean in the ordinary sense of the word, but must be free of germs. Dressings are used to cover the wound and protect it from bacteria, to control bleeding, to apply medication, to absorb excess moisture, and to conserve local heat. The material most commonly used in the making of dressings is gauze. Sponges and compresses are made of gauze or of cotton wrapped in gauze. Dressings may be generally classified as standard dressings for field and hospital use, commercially prepared and packaged dressings, and improvised dressings. In the field, the most widely used dressing is the first-aid dressing, and will therefore be stressed in this chapter. The small first-aid dressing is for individual troop use and for treatment of small wounds; the medium is carried by the aidman for emergency medical treatment; and the large is for use in aid stations, collecting stations, and clearing stations.

62. Standard Dressings for Field Use

a. Dressing, first-aid, field, individual, troop, 4 by 7 inches; sterile; brown; (first-aid packet).

b. Dressing, first-aid, field, 4 by 7 inches; sterile; brown; (battle dressing).

c. Dressing, first-aid, field, $7\frac{1}{8}$ by 8 inches; sterile; brown; (battle dressing); with safety pins.

d. Dressing, first-aid, field, $11\frac{3}{4}$ inches square; sterile; brown; (battle dressing); with safety pins.

e. Compress and bandage, gauze, field 18- by 22-inch compress; two rolls of bandage 6 inches by 6 yards; nonwoven fabric backing and bandage dyed for camouflage; sterile; in waterproof package; with safety pins.

f. Compress and bandage, field, 22- by 36-inch compress; two rolls of bandage 6 inches by 6 yards; nonwoven fabric backing and bandage dyed for camouflage; sterile; in waterproof package; with safety pins.

g. Compress and skullcap, head dressing, 3 by 2 by $\frac{5}{8}$ inch; adjustable; camouflaged; sterile.

63. Procedure

Initial treatment of wounds in the field should consist of such measures as control of bleeding, treatment for shock, splinting of fractures, and protection of the wound by application of a sterile dressing. Care should be taken to insure that the surface of the dressing which is to be applied to the wound is not allowed to slide over the wound or come in contact with the fingers, the skin surrounding the wound, or any substance that is not sterile. After the patient reaches a medical treatment facility, the wound should be examined and treated in accordance with instructions issued by a medical officer.

64. Steps in Applying Dressing

(fig. 51)

- a. Open packet and remove wrapped dressing.
- b. Remove wrapper from dressing, twisting wrapper to remove it quickly.
- c. Grasp one of the folded ends in each hand and open dressing carefully with printed side up, being careful not to touch side of dressing which goes next to the wound.
- d. Still holding folded end in each hand, apply dressing to the wound and hold it there. If one dressing is not large enough to cover the wound or if additional pressure is desired for hemorrhage control, apply more than one dressing.
- e. Wrap the tails around the injured part and tie ends together, anchoring the dressing firmly in place. The four tails of the dressing should be utilized as bandages applied flat; they should not be allowed to become twisted into cords, thereby causing uneven constriction. Whenever possible, the dressing should be applied so that the tails cover the edges of the dressing in order to close off the wound from dirt and germs. By changing slightly the direction of application, it is possible to completely enclose the sides and ends of the dressing so that dirt cannot get under it and into the wound. This method of wrapping the tails also insures firm, uniform pressure. In some instances, the tails of the dressing will not be of sufficient length to achieve the desired pressure over the wound and to close off the edges of the dressing. In such cases, it is desirable to apply additional bandage or strips of cloth. To hold several dressings close together, the tails of the dressings can be knotted together. Dressings can also be reinforced by threading roller bandage under the tails on the back of the dressing between the two sewed portions which secure them to the dressing.

lower dressing around the arm under axilla on the injured side and tie.

c. For wounds of the head (vertex), apply dressing to vertex and bring tails to sides. Carry front tails back over ears, cross them on back of neck, and tie in front of neck (not tightly). Carry back tails forward across and below ears, and cross under the chin. Bring tails up toward top of head in such a manner that the tails close the gap at the sides. Tie on top of head in middle of dressing.

d. In wounds of the face and neck, bleeding is usually severe. Stop the bleeding by exerting pressure with a dressing. In wounds of this type, the mouth should never be bandaged shut, since there is always danger of choking on blood or vomitus. The dressing should be so applied that enough freedom is allowed for free drainage from the mouth. If wound is under chin, place dressing under chin and bring tails to the sides. Carry forward tails up in front of ears and tie firmly on top of head. Bring rear tails behind ears and tie less firmly but still snugly on top of head. In this manner, pressure is upward not backward, and the jaw can be opened against the upward pressure of the dressing below the chin to allow for free drainage.

e. For wounds of the forearm (lateral and medial surfaces), cover wound with dressing and wrap and tie tails around the arm.

f. For wounds of the knee, cover wound with dressing, press, and wrap tails around limb. Apply a completely closed dressing taking care to prevent interference with circulation. Tie tails securely behind the knee.

66. Improvised Dressings

Freshly laundered handkerchiefs, towels, or other cloth may be used in emergencies when sterile dressings are not available. These should be carefully unfolded and a part that has not been touched placed next to the wound. If these are not to be found, take the cleanest cloth available and sterilize it by scorching with a hot iron or over a flame. The small amount of carbon which may collect on the cloth during this operation contains no germs and is not sufficient in amount to do any harm.

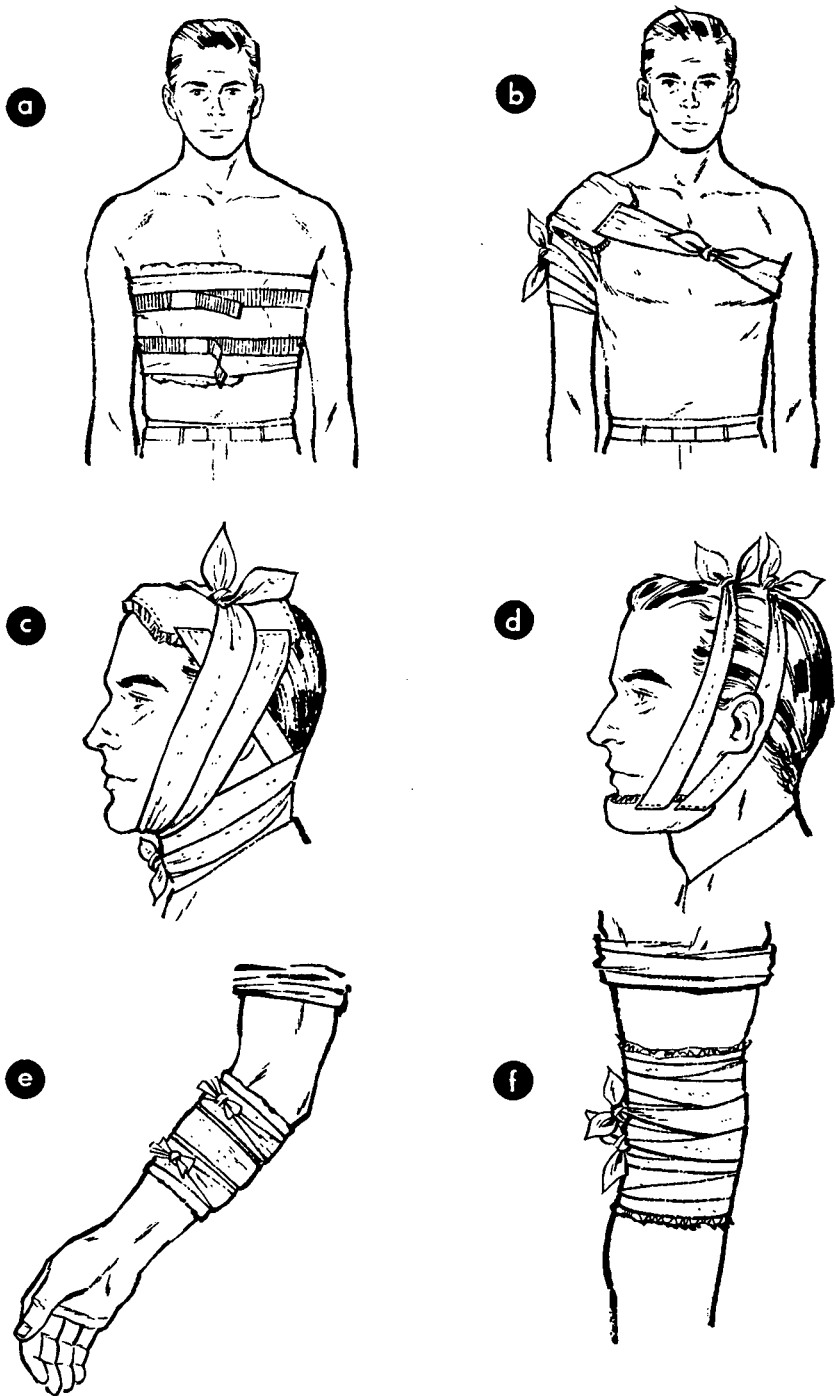


Figure 52. Application of dressings to wounds of specific areas.

CHAPTER 4

SPLINTING

Section I. INTRODUCTION

67. General

Fractures can cause total disability or death; on the other hand, they can often be treated so that the patient completely recovers from his injury. A great deal depends upon the treatment the patient receives before being moved. This treatment normally includes the use of splints. The purpose of splinting is to immobilize the fragments of a broken bone. Fixing the fragments of a broken bone will prevent the jagged edges of the bone from tearing blood vessels and nerves, will reduce and sometimes actually prevent shock, and will greatly reduce the pain induced by the fracture. In a closed fracture (one in which there is no communication between the outside of the skin and the fracture), proper splinting will prevent the bone fragments from piercing the skin. If the fracture is open, proper splinting will prevent further injury to the wound. Correct methods of applying various splints are illustrated in this chapter. The procedures involved are not simple and require constant practice and careful attention to detail. Their importance cannot be overemphasized.

68. General Principles of Splinting

- a. All fractures of long bones should be splinted "where they lie" before movement or transportation of any kind is attempted.
- b. In applying a splint, the joint above the fracture and the joint below the fracture should be immobilized.
- c. The splint should be so applied that it does not interfere with the circulation of the splinted part.
- d. The splint should be padded to prevent injury to the limb or discomfort to the patient.
- e. Traction is required for most fractures of long bones to overcome muscle contraction and associated shortening. Traction overcomes muscle contraction and lessens shortening and thus regains or maintains normal length of the bone.
- f. Splints may be improvised from boards or sticks, rolled magazines or newspapers, etc.

Section II. SPLINTING OF FRACTURES OF UPPER EXTREMITIES

69. Basswood Splint for Fracture of Arm (humerus) (fig. 53)

a. Use two basswood splints. (In illustration, complete padding is not shown for clarity, but all splints must be padded.) Place pad in axilla to protect blood vessels and nerves from undue pressure. Then place a padded splint between arm and chest wall. Place the other padded splint on lateral surface of arm.

b. Secure padded splints in position with triangular bandages folded as cravats, as shown, or with roller bandage.

c. Place forearm in sling (fig. 4). (Narrow sling is shown in illustration for clarity.)

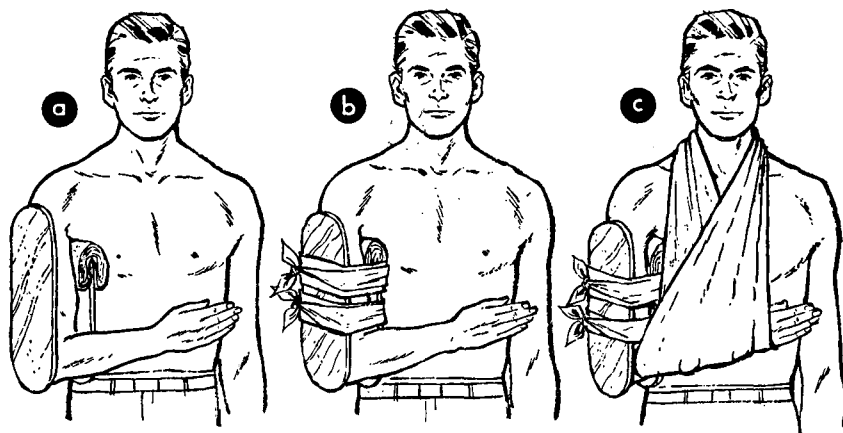


Figure 53. Basswood splint for fracture of arm (humerus).

70. Basswood Splints for Fractures at or near Elbow When Elbow Cannot Be Bent (fig. 54)

a. With arm held at approximately 45° angle from the body, apply padded splint to medial surface of arm, with splint extending from just below axilla to wrist.

b. Apply padded splint to lateral surface of arm, with splint extending from shoulder (as shown in illustration) to wrist.

c. Secure padded splints in position with triangular bandages folded as cravats (as illustrated), with roller bandage, or with strips of adhesive tape which do not encircle arm but are medially and laterally placed.

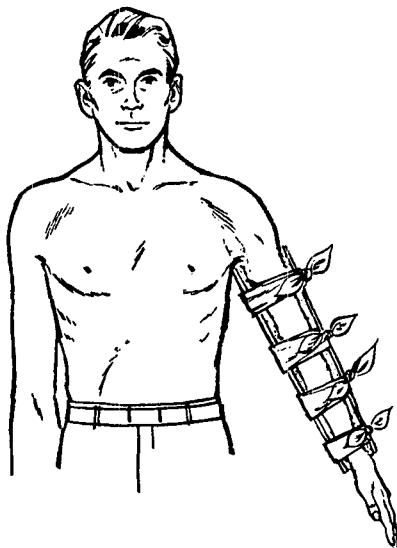


Figure 54. Basswood splints for fracture at or near elbow when elbow cannot be bent.

71. Chest Wall as Splint for Fracture of Arm (humerus) (fig. 55)

a. Place pad under arm against chest wall. Then fix arm to chest wall, with triangular bandages folded as cravats (as illustrated), or with strips of roller bandage.

b. Place forearm in sling (fig. 4).

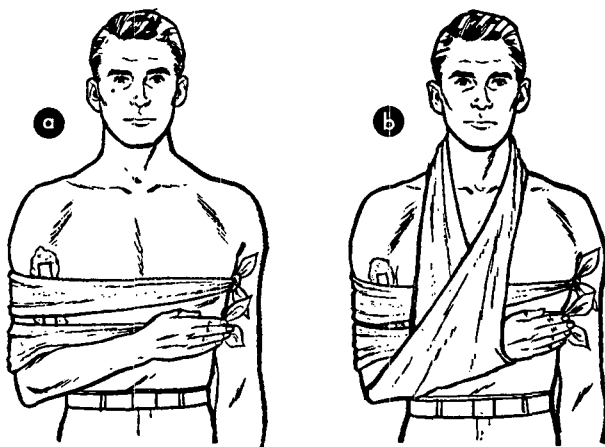


Figure 55. Chest wall as splint for fracture of arm (humerus).

72. Basswood Splint for Fracture of Forearm, Wrist, or Hand (fig. 56)

Place padded splints in position and secure with triangular bandages folded as cravats or with roller bandages. Place splinted arm

in sling (fig. 4). Note that level of hand is several inches above level of elbow. (Padding is omitted and narrow sling is shown in fig. 56 for clarity.)



Figure 56. Basswood splint for fracture of forearm, wrist, or hand.

73. Wire Ladder Splint for Fracture of Arm (humerus) (fig. 57)

The wire ladder splint is 31 inches long and 3½ inches wide. The sides and ends are of strong wire which can be bent by hand to fit various shapes. The cross struts are thin wires attached to one side of the splint wires. These splints may be lashed together to provide additional length. Wire ladder splints should be well padded before application. The following steps should be taken in the application of a wire ladder splint for a fractured humerus.

- a. Bend splint to fit, pad well, and secure padding.

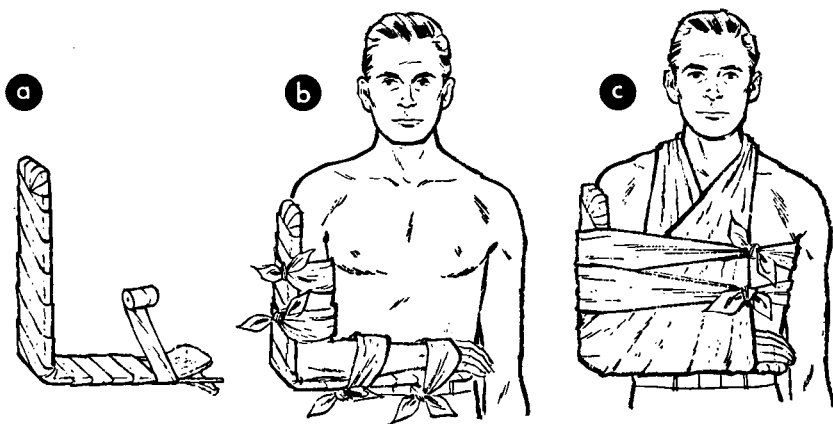


Figure 57. Wire ladder splint for fracture of arm (humerus).

b. Place splint in position on lateral surface of arm extending from shoulder to dorsum of hand. Secure splint to arm with cravats.

c. Support forearm with sling (fig. 4). For transportation purposes, fix arm to chest wall with triangular bandages folded as cravats or with strips of roller bandage.

Section III. IMPROVISED SPLINTS AND SLINGS FOR UPPER EXTREMITIES

74. Stick Splint for Fracture of Forearm or Wrist (fig. 58)

Place padded sticks in position as illustrated, making certain that sticks are wide enough and are padded. (Padding is omitted and narrow sling is shown in illustration for clarity.)

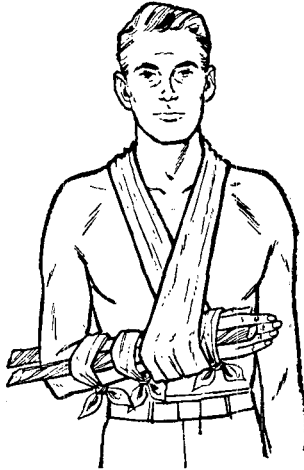


Figure 58. Stick splint for fracture of forearm or wrist.

75. Field Jacket Flap Used as Sling (fig. 59)

Open all jacket buttons except top one, and bring front flap up over injured arm. Secure with safety pin to jacket at upper chest.

76. Shirrtail Used as Sling (fig. 60)

Open lower three buttons of shirt, and bring front shirrtail up over injured arm. Fold back edge of shirrtail for about 1 or 2 inches and secure with safety pins to shirt at upper chest.



Figure 59. Field Jacket flap used as sling.



Figure 60. Shirttail used as sling.

Section IV. SPLINTING FRACTURES OF LOWER EXTREMITIES

77. General

The half-ring Thomas leg splint with supporting equipment (fig. 61) is used to immobilize and render transportable fractures of the long bones of the lower extremity. Although the splint illustrated is the telescopic splint, there are many of the solid shaft splints still being utilized.

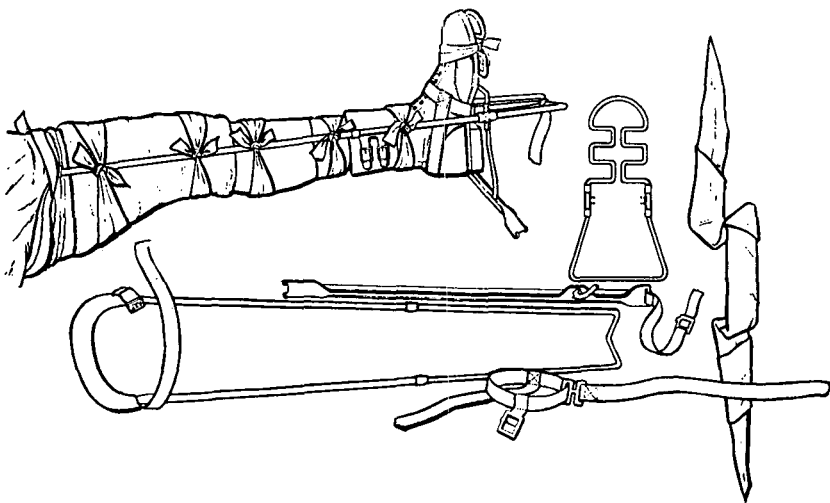


Figure 61. Half-ring Thomas leg splint.

78. Application of the Half-Ring Thomas Leg Splint (ten steps).

The application of the half-ring Thomas leg splint, as here outlined, is done in ten steps for the purpose of clarity in instruction; however, it should be borne in mind that the operation of splinting is a continuous procedure in which all personnel concerned with splinting the patient are constantly occupied with application of the splint or the treatment of the wounded patient. (The telescopic splint and the solid shaft splint are applied in the same identical manner except that the telescopic splint can be adjusted to the desired length.)

79. Step 1—Dress Litter (fig. 62)

- a. Open litter.
- b. Place first blanket in position.
- c. Fold first blanket on self to overhand one-third on opposite side of litter.
- d. Place second blanket on litter, reversing procedure in c above.
- e. Fold back on self to overhand one-third on opposite side.
- f. Litter is now covered with four blanket folds on which patient is placed.

80. Step 2—Apply Traction Strap and Initiate Traction (fig. 63)

This step may be done simultaneously with step 3. See comment step 3.

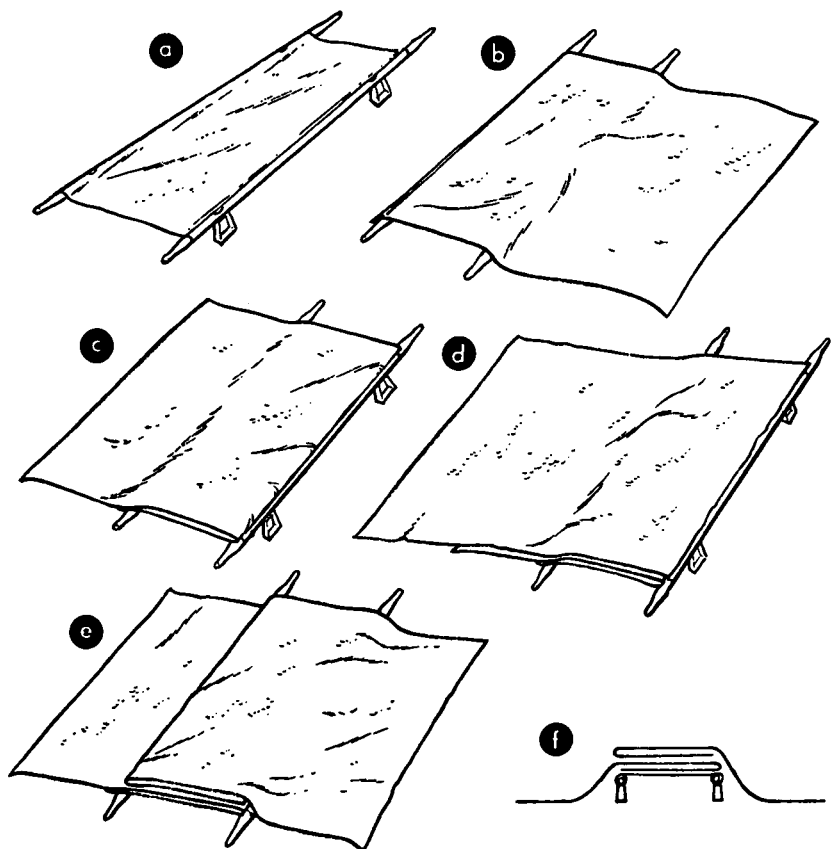


Figure 62. Dress Litter.

a. Apply traction strap over boot.

b. No. 1 man places leg splint alongside injured leg, with the ring portion near the hip and with the buckle on the outside. The lower or sliding portion of the splint should be extended from six to eight inches beyond the patient's foot, and the locking devices securely fixed. No. 2 man passes hand through rods, grasping heel with that hand and instep with other hand. No. 2 man then exerts traction by pulling on foot, and while doing so raises it several inches from the ground. No. 3 man supports leg while it is being pulled and raised, No. 1 man then rolls splint into position under injured leg.

81. Step 3—Dress Wound

If wound has not already been dressed, it is done at this point and, if already dressed, the dressing is inspected and adjusted if necessary. Steps No. 2 and No. 3 may be done simultaneously by different members of the team.

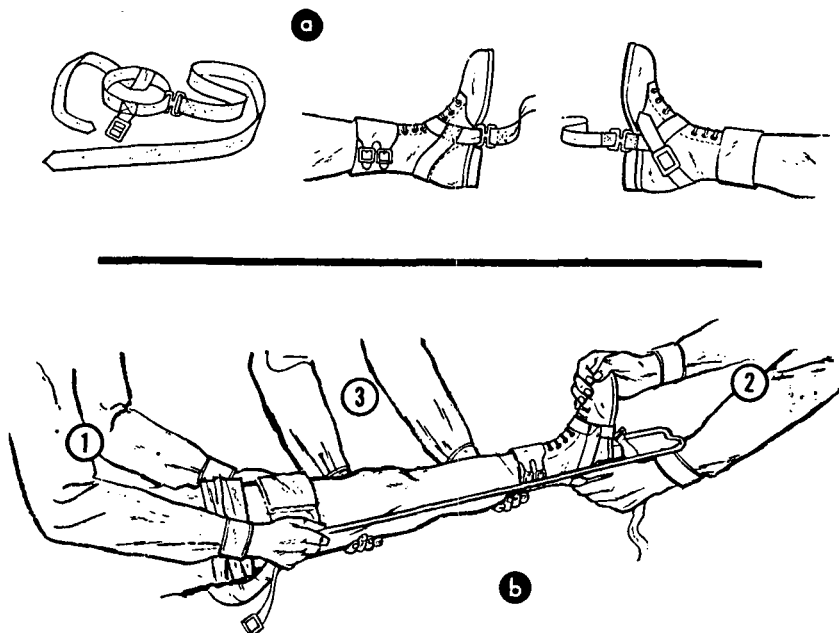


Figure 63. Apply traction strap and initiate traction.

82. Step 4—Apply Splint and Secure Traction Strap (fig. 64)

a. No. 1 man eases splint up under patient's hip, bending padded half-ring to a right angle, and insures that the half-ring sets against bone in buttock (tuberosity of the ischium). Then No. 1 man fastens strap securely at upper thigh. (It is advisable to use padding under strap.) No. 2 man continues pulling on leg, and No. 3 man continues to support limb. (Long rod of splint should always be on outside.)

b. Long free end of traction strap is brought down over notched end of splint by No. 1 man, and then brought back and passed through link at swivel. No. 2 and No. 3 continue as in figure 63. No. 1 man pulls on free end of traction strap to secure, greater traction, and fastens strap securely to splint.

83. Step 5—Secure Splint Support and Footrest (fig. 65)

No. 1 man secures splint support and footrest in position. No. 2 man and No. 3 man continue to maintain traction and support limb.

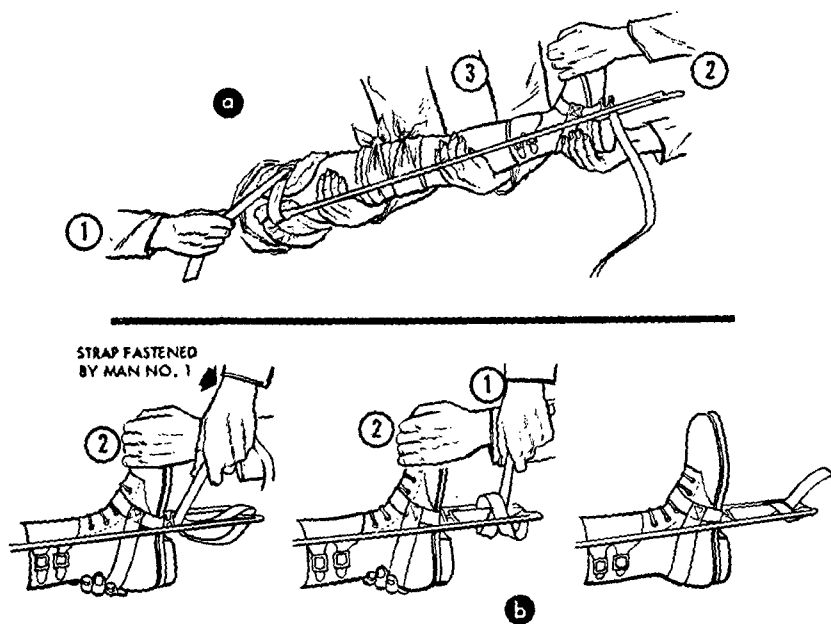


Figure 64. Apply splint and secure traction strap.

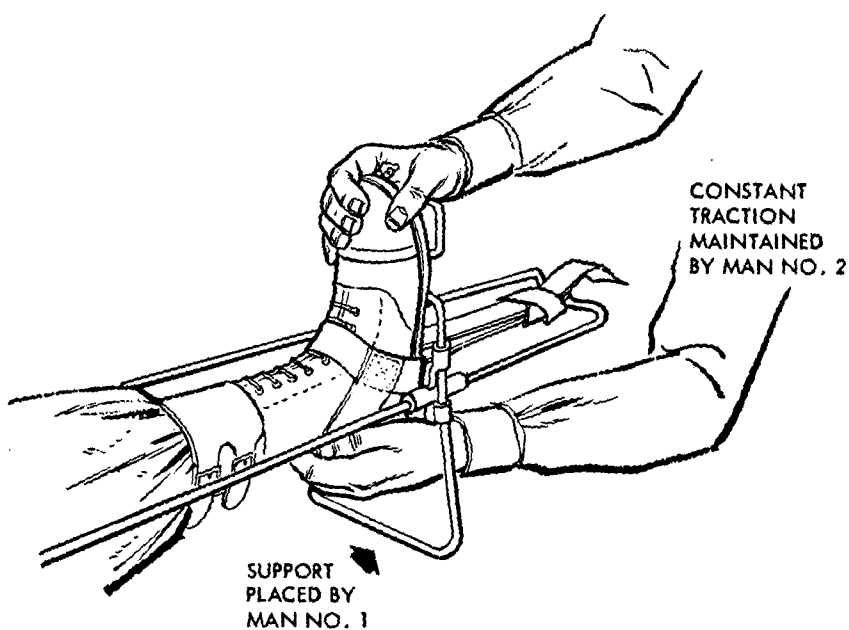


Figure 65. Secure splint support and footrest.

84. Step 6—Support Leg
(fig. 66)

- a. Place cravat bandage across rods of splint, leaving loop between rods and allowing ends to fall over rods, with one end longer than the other.
- b. Bring ends under splint and loop, in opposite directions. Carry long end over top of splint.
- c. Tie ends together with a square knot directly over the outside splint bar.
- d. Place five cravat bandages in this manner to support the injured limb.

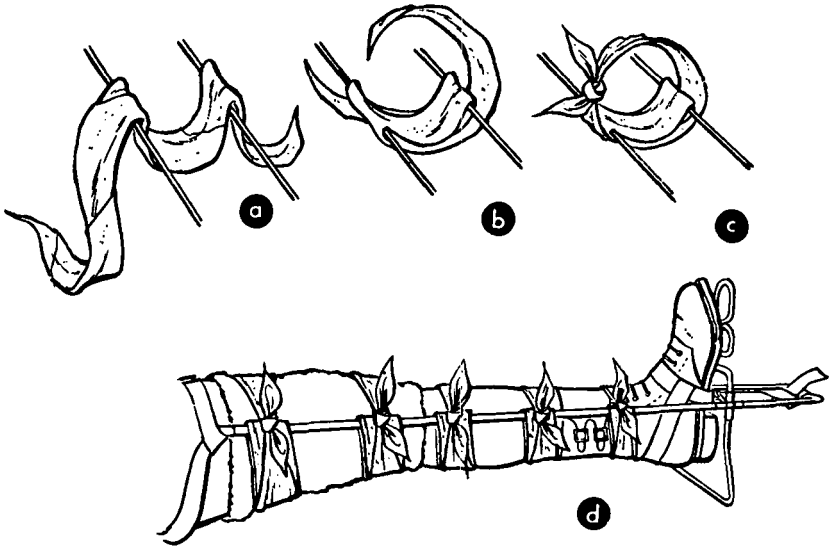


Figure 66. Support leg.

85. Step 7—Secure Foot to Splint Support and Footrest
(fig. 67)

Secure foot to splint support and footrest with triangular bandage folded as cravat and tied in same manner as for supporting leg (step 6).

86. Step 8—Place Patient on Dressed Litter
(fig. 68)

- a. No. 2 man and No. 3 man kneel on side of patient nearest splinted leg; No. 1 kneels on opposite side. Each man kneels on his knee nearest patient's feet. No. 1 places his hands under patient's back and thighs, while No. 2 places his hand under patient's legs and No. 3 supports patient at shoulder and back. Then all three men raise patient together onto thighs of No. 2 and No. 3.

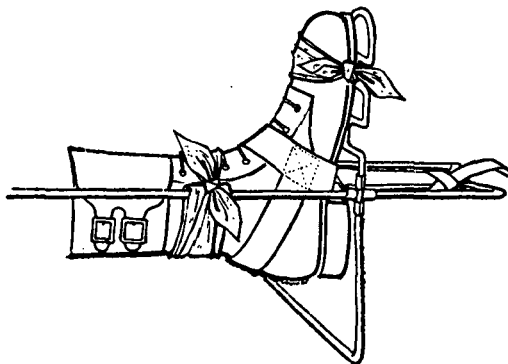


Figure 67. Secure foot to splint support and footrest.

b. No. 2 man and No. 3 man support patient on thighs, while No. 1 places dressed litter in position. Then No. 1 aids No. 2 and No. 3 in placing patient gently on litter, supporting patient with hands in same positions as when lifting patient.

c. Patient is on litter with splint support resting on litter an inch or two from lower border of canvas.

87. Step 9—Secure Splint to Litter with Litter Bar (fig. 69)

Litter bar is placed in position with groove under horizontal part of splint support. Splint support is then placed in this groove and locked there by turning handle of cam. (Bar is placed so that cam is on same side as splinted leg.)

88. Step 10—Cover Patient (fig. 70)

No. 2 man and No. 3 man fold third blanket once lengthwise and place it on patient so that one edge is under chin. They then bring up free edges of first two blankets, fold over third blanket (making sure that patient's feet and lower end of splint are enclosed), and secure blanket in place with safety pins.

89. Ankle Hitch Using Cravat or Roller Bandage (fig. 71)

The ankle hitch using cravat or roller bandage is applied when traction strap is not available. (Cravat bandage is shown in illustrations.)

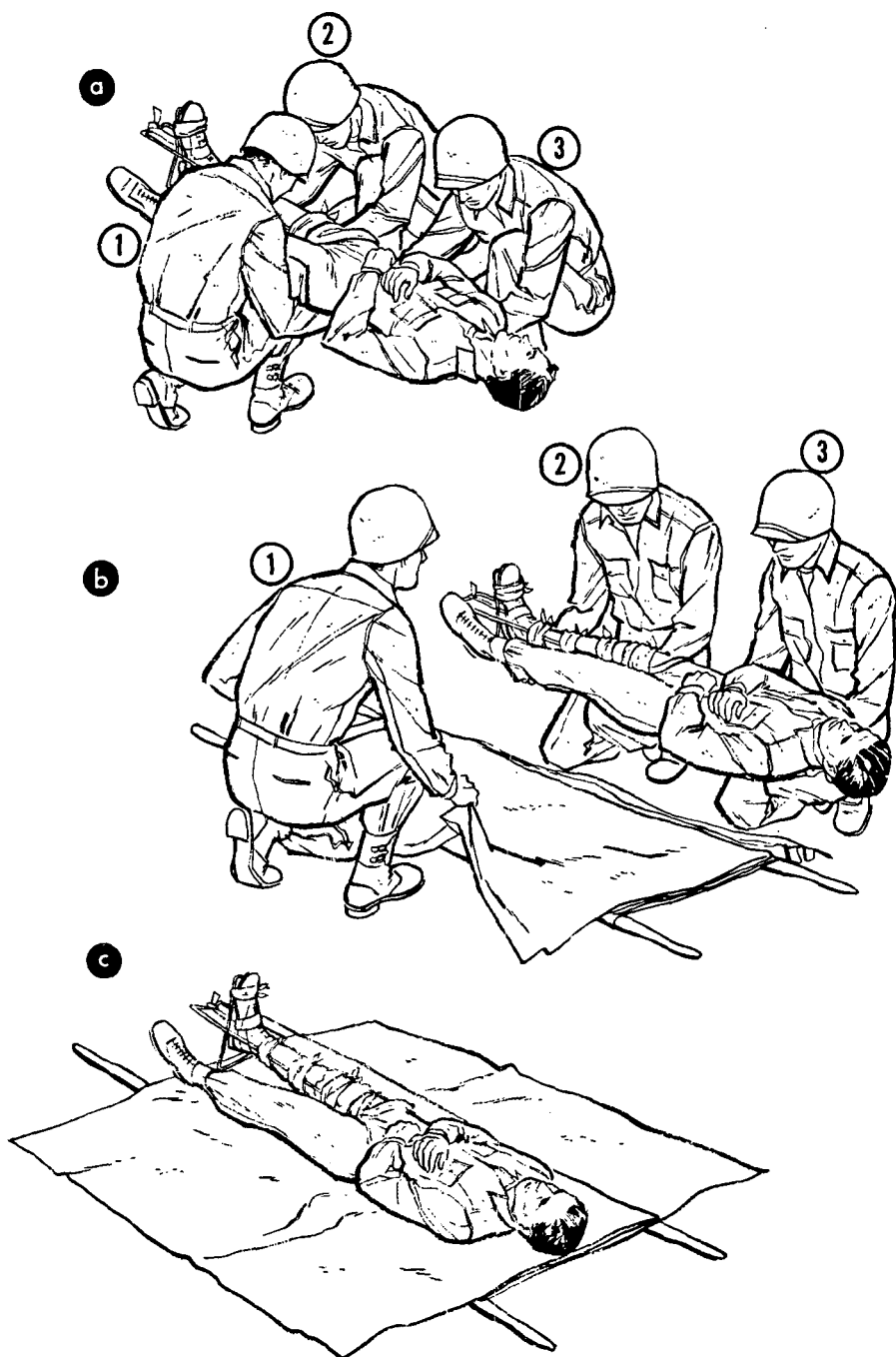


Figure 68. Place patient on dressed litter.

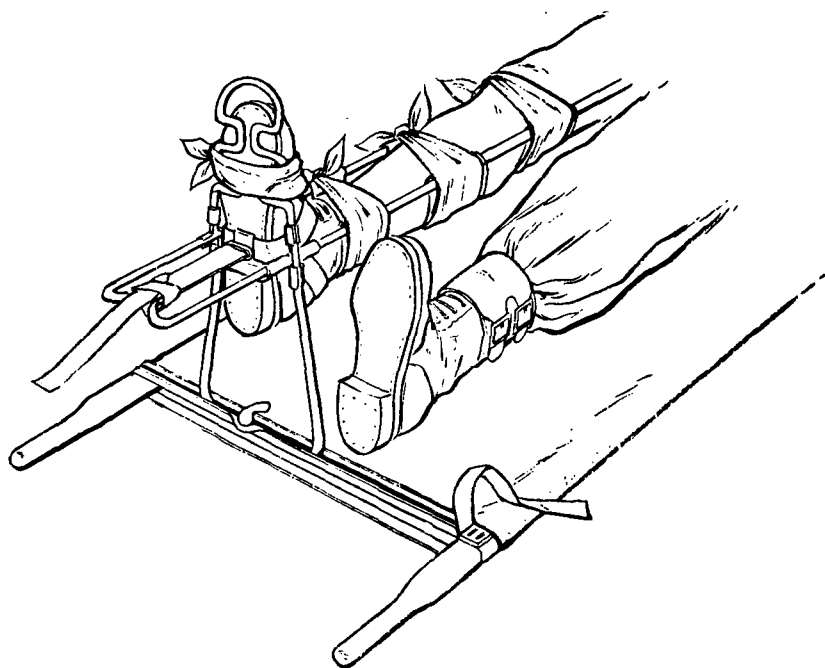


Figure 69. Secure splint to litter with litter bar.

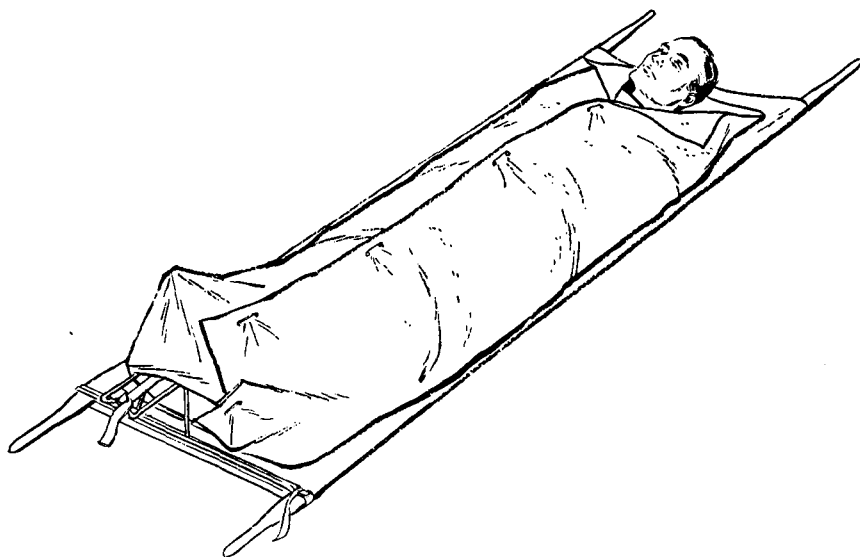


Figure 70. Cover patient.

- a.* Hold cravat in one hand, and make loop, leaving one end of cravat longer than the other.
- b.* Pass long end of cravat behind loop and hold it in a position which bisects the loop.

- c. Bring upper half of loop over instep, bisecting portion of cravat under instep, and lower half of loop under heel.
- d. Continue as in c above.
- e. Using the two ends of the cravat, apply traction.

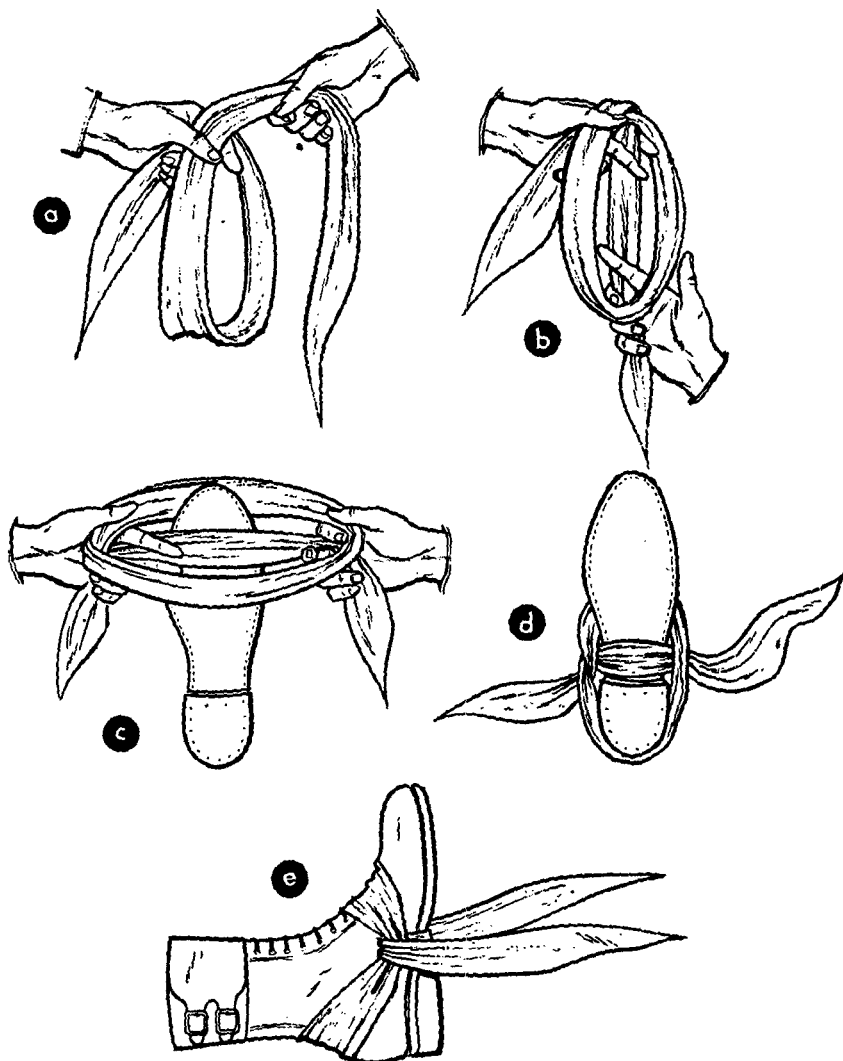


Figure 71. Ankle hitch using cravat or roller bandage.

90. Ankle Hitch Using Two Cravats (fig. 72)

The ankle hitch using two cravats is used for holding sprained ankle in fixed position, and for securing traction in cases of fracture of thigh or leg.

- a. Place center of cravat under arch of shoe.
- b. Carry both ends back of foot, crossing at back of ankle.
- c. Carry ends to front of foot, cross each end in front of ankle, and carry ends under bandage at each side of ankle. Take up slack.
- d. Bring ends to front.
- e. Tie securely.
- f. Slip second cravat through fold under arch of shoe.
- g. Fasten ends of second cravat in square knot over notched end of splint. Insert piece of wood in position for use as windlass.
- h. Obtain traction by twisting piece of wood.
- i. When traction is complete, secure windlass to splint.

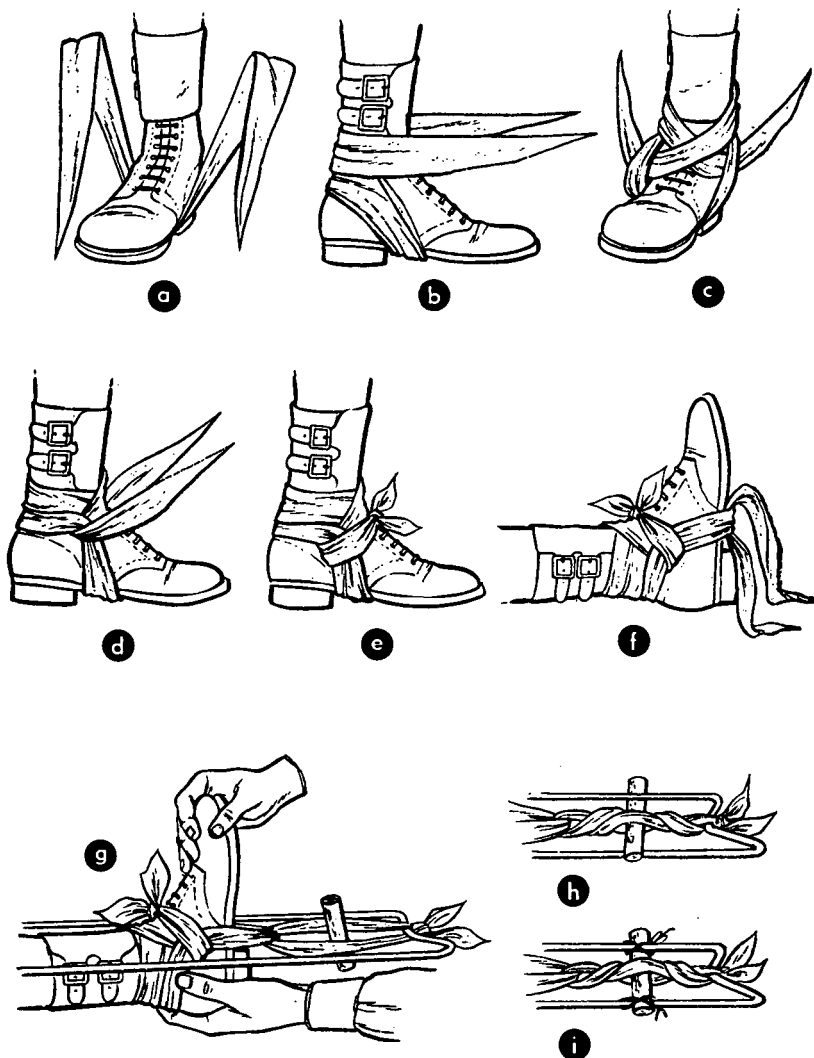


Figure 72. Ankle hitch using two cravats.

91. Alternate Method of Securing Splint to Litter with Roller Bandage Tie
(fig. 73)

a. When litter bar is not available, secure end of bandage to litter support on same side as splinted leg. Encircle handle of litter close to canvas with two turns, and carry up to outside rod of splint at juncture of splint support. Secure here with two turns of bandage.

b. Carry back and around same handle encircling with two turns, keeping bandage taut at all times. Carry bandage under handles to opposite handle of litter, encircle twice, and secure to inside rod of splint at juncture with splint support. Secure with two turns.

c. Carry back around second handle, encircle twice, and secure to second litter support.

92. Wire Ladder Splint for Fracture of Lower Extremity
(fig. 74)

The wire ladder splint may be used for fractures of the lower portion of the leg and for injuries and fractures about the ankle and foot.

a. Bend splints to fit as shown at ④.

b. Pad well, and place in position as shown at ⑤.

c. Complete by securing both splints to injured limb, using roller bandages or cravats.

Section V. IMPROVISED SPLINTS FOR LOWER EXTREMITIES

93. General

In the field it may be necessary to improvise splints from any suitable material that is available. Leg splints can be improvised from boards, sticks, or poles well padded with blankets or pieces of cloth or from rolled magazines or newspapers. If splinting material is not available or if time is limited, both legs can be tied together with belts or strips of cloth above and below the fracture, with the uninjured leg serving as a splint for the fractured leg.

94. Stick, Pole, or Board Splints
(fig. 75)

If sticks or poles are used as splints, they should be well padded to protect the leg from pressure and rubbing. Place stick or pole on each side of a folded blanket and roll toward the center until only enough unrolled blanket remains to hold the injured leg. Be

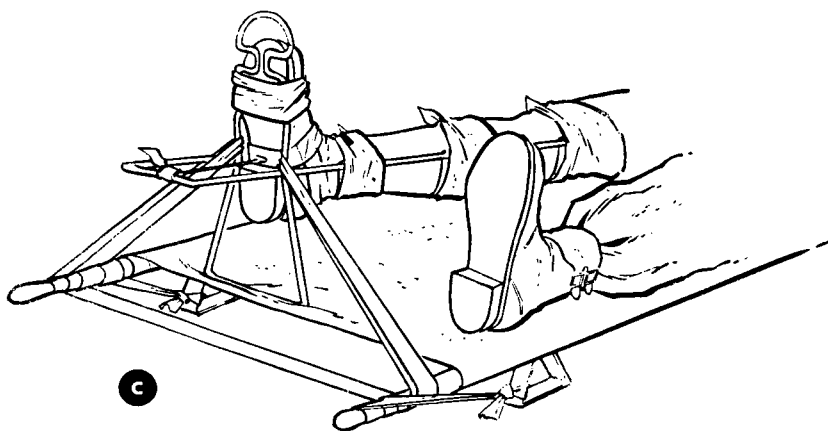
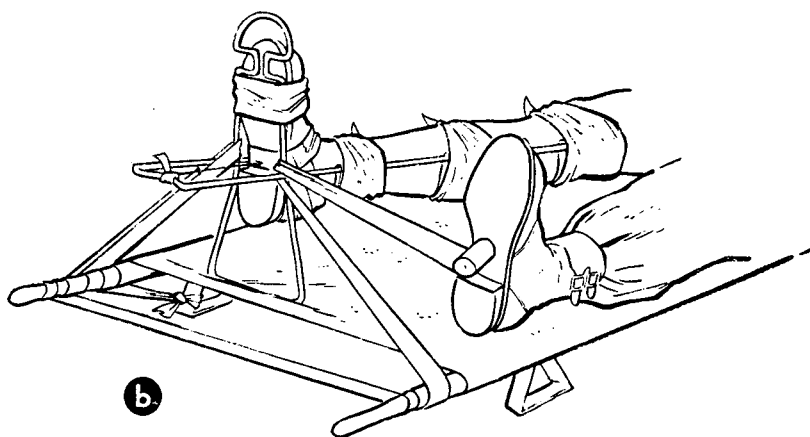
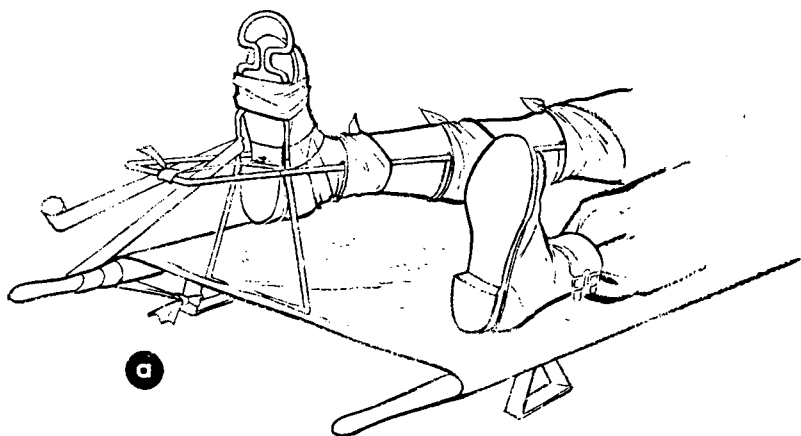


Figure 73. Alternate method of securing splint to litter with roller bandage tie.

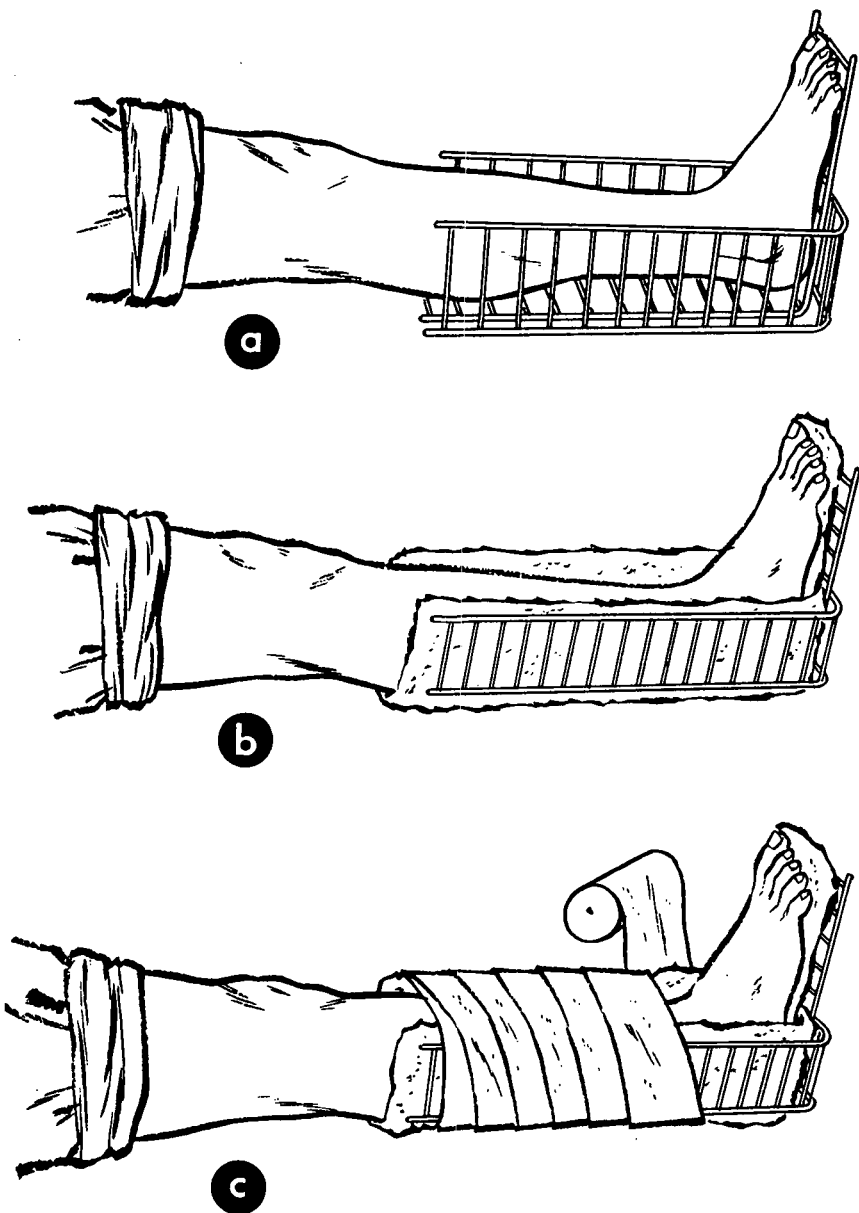


Figure 74. Wire ladder splint for fracture of lower extremity.

sure that the ends of the sticks or poles are well padded. If boards are used, pad the inside of the splint.

a. For fractures of the tibia, ankle, or foot, the splint should extend from above the knee to a little below the foot. Secure the splints with five cravat bandages, the first two above the fracture,

the second two below the fracture, and the fifth one immediately above the knee. Tie all knots on the outer splint.

b. If the broken bone is in the thigh or hip, the inside splint should extend from the groin to a little below the foot, and the outside splint should extend from the axilla to a little below the foot. Place pads in the axilla and groin to cover the ends of the splints. In addition to the five cravats placed as described in *a* above, secure the long splint with two triangular bandages folded broad and tied, one around the chest and the other around the hips.

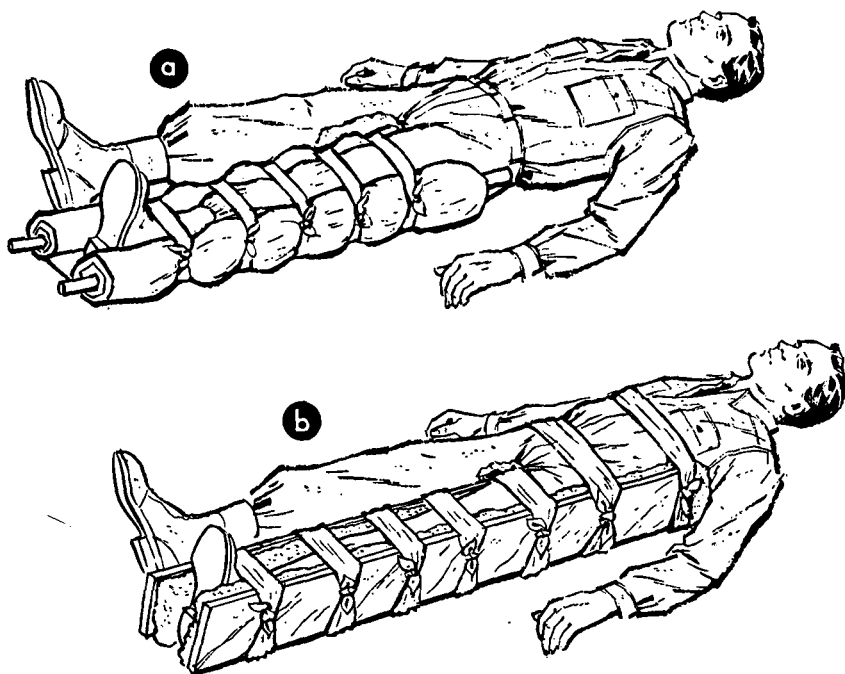


Figure 75. Leg splints improvised from sticks, poles, or boards.

Section VI. PREPARATION OF PATIENTS WITH VERTEBRAL INJURIES FOR TRANSPORTATION

95. Transportation of Patient with Fractured Neck (fig. 76)

When a patient with a fractured neck is moved, the most important point to remember is that the patient's neck must not be flexed. If the neck is flexed, the patient may die instantaneously, or he may be permanently disabled. In moving the patient, the head and trunk must be moved in unison. One person should never attempt to move a patient with a fractured neck; at least two are

necessary, so that one can steady the head and neck while the other moves the patient.

a. Place a board or plank lengthwise beside the patient so that it extends at least 4 inches beyond his head.

b. If the patient is found face up, No. 1 man steadies the head and neck between his hands, while No. 2 man grasps him at the shoulders and hips, places his foot against the board to prevent it from slipping, and slides the patient onto the board.

c. If the patient is found face down, No. 1 man steadies the head and neck between his hands as in *b* above, while No. 2 man, holding the patient at the shoulders and hips, gently rolls him onto the board so that he lies face upward.

d. No. 1 man steadies the head and neck of the patient between his hands, while No. 2 man raises the shoulders and places a rolled bath towel, or a roll of clothing about the same bulk as a bath towel, under the neck for support and padding. The roll should be thick enough only to arch the neck slightly and should be so placed that when the patient is lying flat the back of his head touches the board. He then places a large padded rock or pack against each side of the head to prevent it from moving and ties a cravat bandage over the brow and around the board for additional security.

e. The patient may then be picked up by grasping the board at the head and feet and placing it on a litter. Either two or four men may form a team to carry the patient. If no litter is available, the board may then be lifted onto a blanket and the blanket used as a litter.

f. A fractured neck may be immobilized by means of wire ladder splints, if they are available. Overlap two splints, fasten them together, and pad them. Shape them to fit the head and shoulders in a yoke-shaped splint. No. 1 man steadies the head and neck of the patient, while No. 2 man places splint over shoulders and head, secures splint to shoulders with bandages running under the axilla and over the shoulders, and immobilizes the head to the splint by tying circular bandages around the forehead and jaw.

96. Transportation of Patient with Fractured Spine (fig. 77)

The chief concern in handling a patient with a fractured spine is to prevent further damage to the spinal cord. Do not flex the spine. If the spine is flexed, broken vertebrae can crush the undamaged portion of the spinal cord. To avoid flexing the spine and causing additional damage, it is necessary that the patient's back maintain a sway-back position, which removes the pressure from

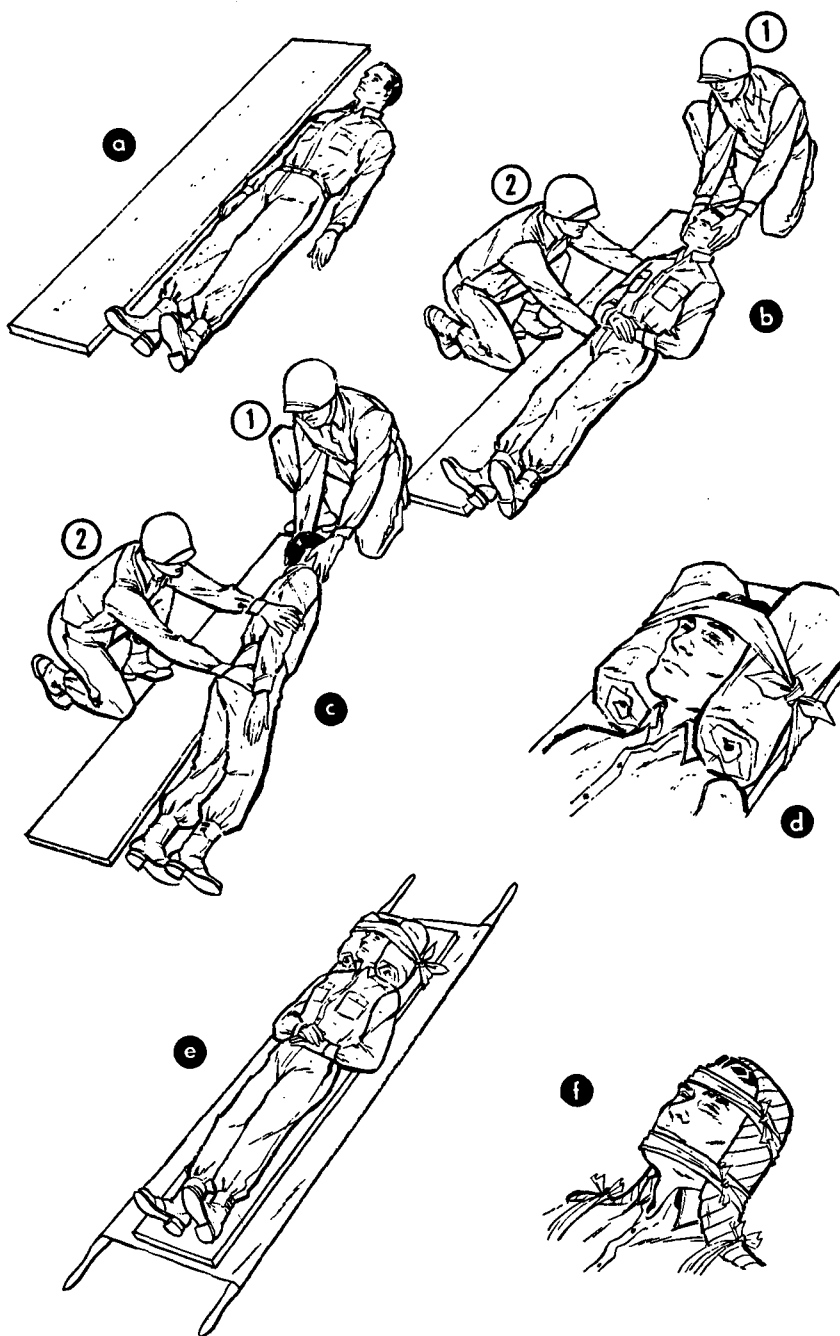


Figure 76. Transportation of patient with fractured neck.

the spinal cord. This is normally achieved by transporting the patient in a supine position with a folded blanket placed under the small of the back. Failure to follow this principle may cause permanent paralysis of the lower extremities. The following steps should be taken:

a. No. 1 man ties the patient's hands across his chest to immobilize patient, and then places a folded blanket on the litter to support the arch of the patient's back.

b. All four men kneel on knee nearest the patient's feet, three men on one side of the patient and one on the other side. No. 3 man kneels at the head of the patient, placing his hands under the patient's shoulders and controlling his head. No. 4 man kneels at the hips, placing his hands under the small of the back



Figure 77. Transportation of patient with fractured spine.

and buttocks. No. 2 man, at the feet, places his hands under the patient's thighs and calves. No. 1 man, opposite No. 4 man, assists in lifting at the site of the injury.

- c. All men gently lift patient off ground about 8 inches.
- d. No. 1 man procures litter, places it under patient, adjusts rolled blanket, and returns to his position assisting No. 4 man.
- e. All men gently lower patient onto the litter.

Section VII. ADHESIVE TAPE STRAPPING

97. General

Adhesive tape may be used to strap or tape injuries for light-weight support, to splint a soft part, or to serve as a semirigid support to limit the mobility of an injured area. It is never used on acute sprains, strains, or contusions.

98. Taping a Sprained Ankle (fig. 78)

Cut 14 strips of adhesive tape about 1 inch wide, half of them about 16 inches long and the other half 10 inches long. Place foot in corrected position. (Foot at right angle to leg.)

a. Have patient hold foot in corrected position by means of a strip of bandage.

b. Start first strip of tape well back on the calf of the leg. Carry it down and around the heel and up the other side of the leg to the starting level. Place another strip, at right angles to the first, on one side of the instep and carry it around the heel to the other side of the foot.

c. Repeat the procedure, overlapping the tape each time until area above ankle is included in the support. A space $\frac{3}{4}$ -inch wide extending up the middle of the dorsum of the foot and ankle should be left free of tape to prevent interference with circulation.

99. Taping the Knee (fig. 79)

The purpose of strapping the knee is to effect immobilization of the knee or to support the soft tissues about the knee joint. It should extend from at least 2 inches below the kneecap to well above it. Cut about 10 or 12 strips of adhesive tape 1 inch wide and about 15 inches long.

a. Place the first strip slightly behind at the inner side of the leg and carry it upward below the kneecap, to slightly behind the outer side of the thigh about 6 inches above the knee. Apply

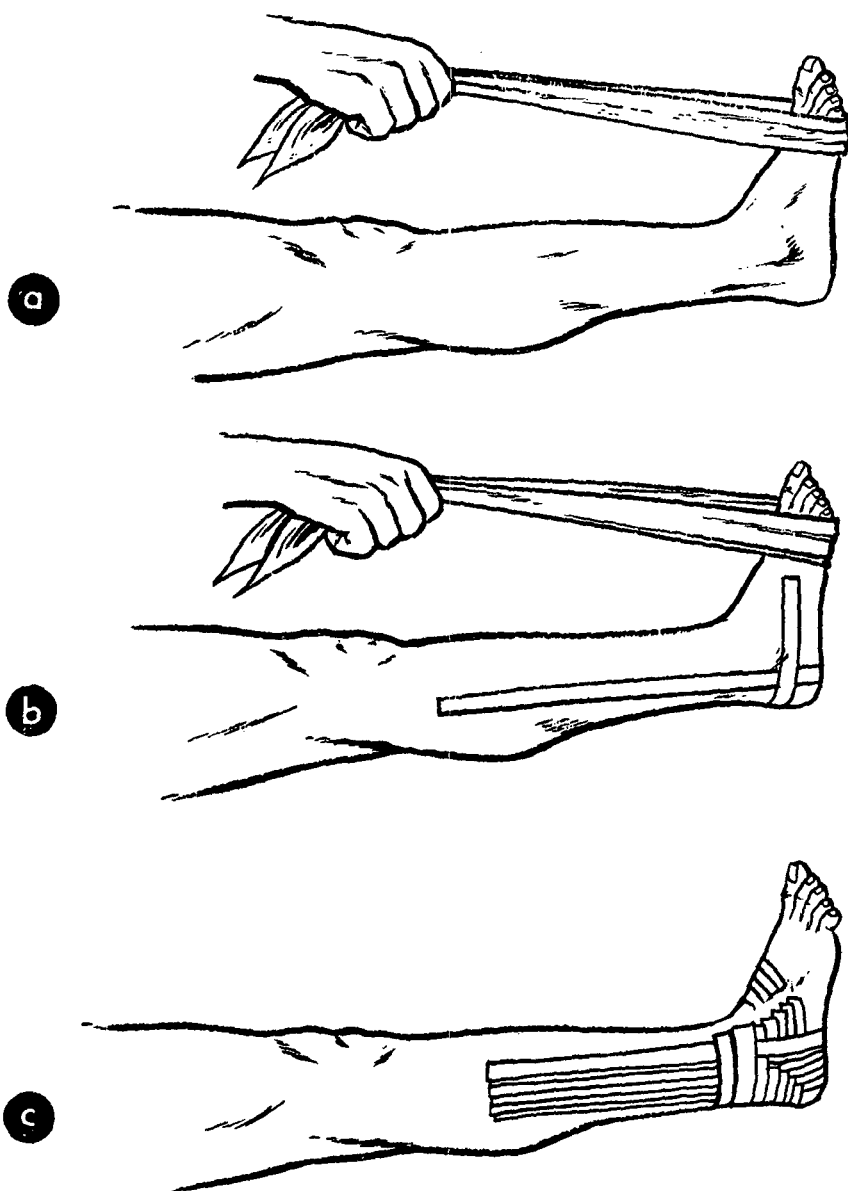


Figure 78. Taping a sprained ankle.

the second strip similarly from the outer side to the inner side of the thigh, crossing the first strip below the kneecap.

b. Repeat procedure with successive strips of adhesive tape, each strip overlying half the width of the preceding strip, until the entire knee region is enclosed.

c. Secure ends of strips and short strips horizontally placed across ends of tape on the leg and on inner sides and outer sides of the thigh, but not encircling leg or thigh.

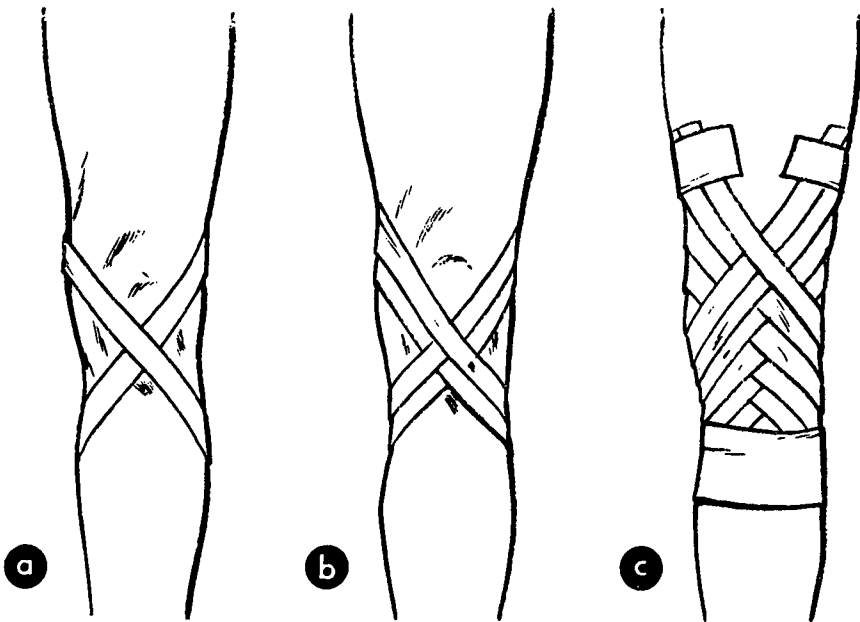


Figure 79. Taping the knee.

100. Taping Fractured Ribs (fig. 80)

Cut several strips of tape about 3 or 4 inches wide, each long enough to reach more than halfway around the patient's chest. Tape is applied when the patient has exhaled all the air from his lungs. One end of the tape is placed across the midline on the back, and the other end is brought around the chest and across the midline of the chest. The procedure is repeated with each strip overlapping one-half of each preceding strip until the chest is strapped.

101. Taping the Back (fig. 81)

Cut about 12 strips of adhesive tape $1\frac{1}{2}$ inches wide and from 10 to 12 inches long. Have patient stand erect. Place a pad of gauze in the hollow of the back to aid in keeping the tape taut. Apply one strip across the back from the lower side of the back to the opposite armpit. Apply another strip in a similar manner on

the opposite side. Continue the procedure, overlapping about one half of each preceding strip. Cover the ends of the narrow strips with short, wider strips of tape.

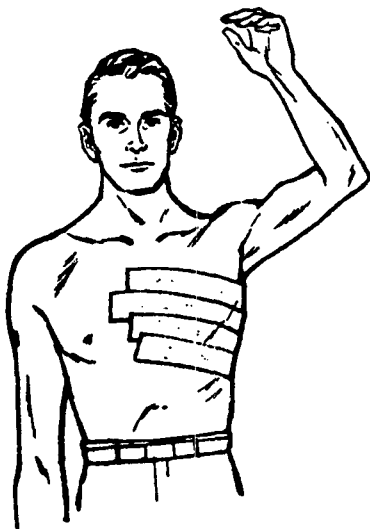


Figure 80. Taping fractured ribs.

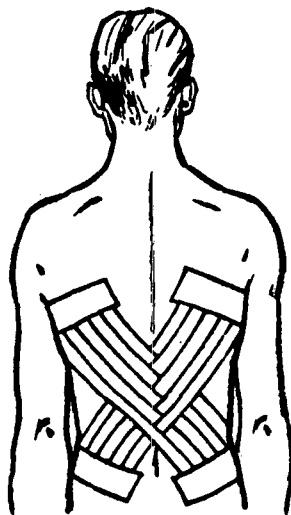


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[AG 730 (19 Apr 57)]

By Order of *Wilber M. Brucker*, Secretary of the Army:

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For explanation of abbreviations used, see SR 320-50-1.

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